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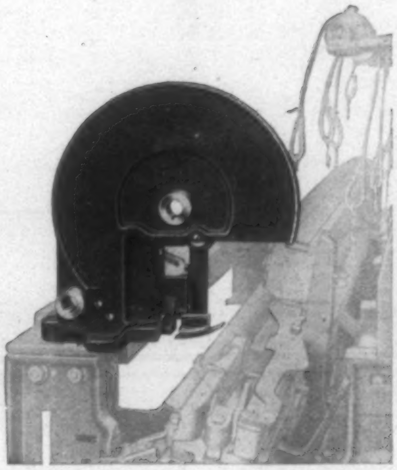
SOUTHERN TEXTILE BULLETIN

VOL. 36 CHARLOTTE, N. C., JUNE, 20, 1929 No. 16

Our New Battery for the Northrop Loom



Has a new Bobbin Support, a new Bobbin Guide which is set higher, a new Transferrer and redesigned and strengthened Back Box Plate. The cut shows the new Hopper Stand with a section cut away to show New Bobbin Support.

No part of the Bobbin Support enters the Shuttle. There is no dragging lip to be trapped under an imperfectly transferred bobbin.

The strain on all transfer parts has been reduced.

Bobbin Support breakage is eliminated; also broken Hopper Stands so far as they were caused by transfer troubles.

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Let's Talk Over this new device for Better Weaving at Less Cost.

DRAPER CORPORATION

Hopedale Massachusetts Southern Office Atlanta Georgia

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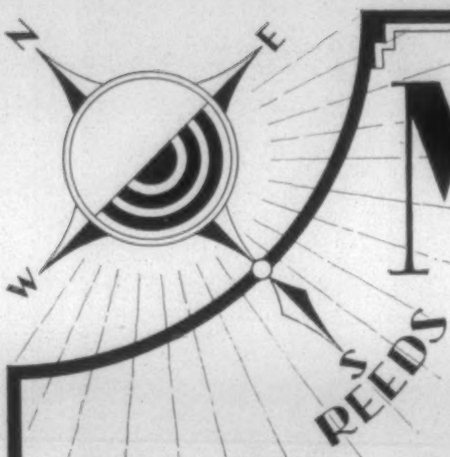

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This clothing should receive your careful consideration and be given a trial.

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INCORPORATED 1911

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Quality and Service
Textile Alkalies

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1866——————1929

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Profit *by the* CHANGING SANDS *of* FASHION

THE rush to keep just ahead of prevailing styles causes both dealer and consumer to demand something new and different. For this reason mills may run at peak production one month and be idle the next. On the other hand, some mills are running full continuously; but in these mills you'll find no inflexible, old-fashioned machines.

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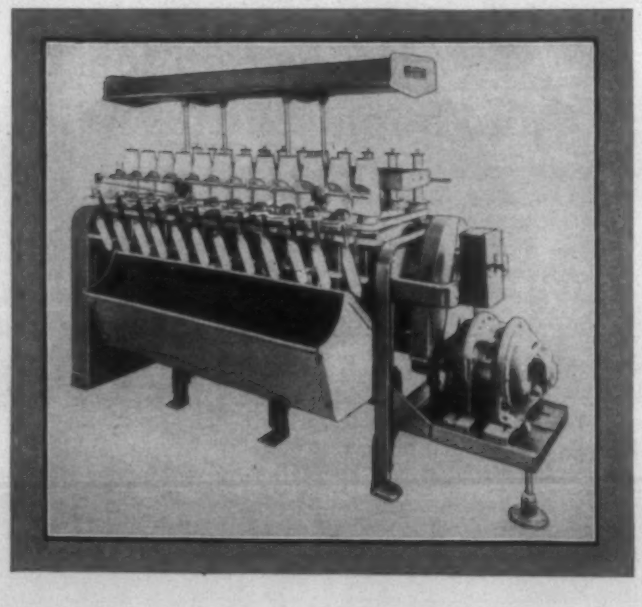
By the use of a new builder motion it is possible to get any desired wind. In other words, one can have a filling or bottle wind, straight wind for double-headed spool, or straight wind with reduced top - without expensive mechanical changes.

And the first cost of the Model F Spooler is extremely low. In fact, much lower than that of a winder. For this reason we suggest that you have one of our experts explain the machine in detail and discuss with you how it may profitably be incorporated into your production program.



The illustration on the right shows a Whitin Model F Even Tension Spooler.

WHITIN MACHINE WORKS

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CHARLOTTE, N. C. ATLANTA, GA.

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OF SOUTHERN TEXTILE MILLS

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The Mill and Office Telephone Numbers of Every Textile Mill in the South

These telephone numbers, which will appear immediately under the mill names, are being supplied by the telephone company. As far as we know this is the only textile mill directory that will carry this listing.

"Clark's Directory" has always been regarded as the most accurate and complete Directory of Southern mills, and we are confident that the incorporation of this new feature will materially add to its value and usefulness.

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For listings in this section, a nominal charge of $5.00 per year will be made. The value of such listing is apparent when it is considered that a copy of "Clark's Directory" is in practically every Southern textile mill office.

To Secure Listing in This Section, Fill in and Mail This Order Today

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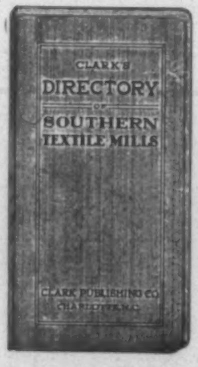

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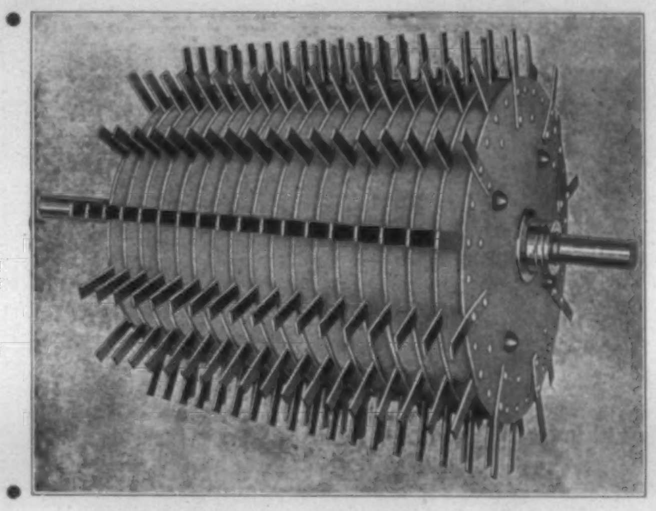

"Buckley" Opener Cylinder, 41 in. diameter.

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If it is of poor quality, improperly constructed or balanced, it becomes a weak link in your production chain and troublesome delays and needless replacements inevitably follow.

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For many years we have made a specialty of building all types of Beaters for Picking Machinery. Our Beaters are built up on shafts made from a special wear-resisting iron. After being accurately machined, all bearing and pulley surfaces are ground to exceedingly close working limits.

Steel blades and discs are fabricated to specification, and only the highest grade materials are used for these parts.

The assembly is performed by skilled mechanics who have been in our employ for many years.

H & B Beaters have earned an enviable reputation for quality over a long period of years.

We supply H & B Beaters for all makes of pickers. Send us your specifications and we will furnish prices and delivery dates.

H & B AMERICAN MACHINE CO.

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Southern Office: 814-816 ATLANTA TRUST CO. BLDG., ATLANTA, GA.

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"TRUE" SPOOLS BETTER Production

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Consider the feature of trueness. The heads of Lestershires are truly perpendicular to the barrels. That means that the traverse is correct at every point. The importance of this is revealed when the yarn is drawn off.

As the traverse of Lestershires is true, the yarn winds on evenly, without open spaces in which the yarn will fall and tuck in, which is invariably the case when the traverse is not correct. As the yarn from Lestershires is drawn off, just the right tension is always maintained. That means the elimination of broken yarn, or stretching of yarn which would later appear in the finished fabric as weak spots.

Good spooling, and consequently good fabrics, are secured through the use of Lestershire Spools.

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SOUTHERN
TEXTILE BULLETIN

Published Every Thursday by Clark Publishing Company, 18 West Fourth Street, Charlotte, N. C. Subscription $2.00 Per Year in Advance. Entered as Second Class Mail Matter March 2, 1911, at Postoffice, Charlotte, N. C., Under Act of Congress, March 3, 1897

VOL. 36 CHARLOTTE, N. C., JUNE, 20, 1929 No. 16

Rayon*

By A. B. Shearer, of Courtaulds Ltd.

AS there is a great deal of misunderstanding as to what is rayon, or as some people still call it "artificial silk," a definition is necessary. Rayon is "the generic name of filaments made from various solutions of modified cellulose by pressing or drawing the cellulose solution through an orifice and solidifying it in the form of a filament, or filaments, by means of some precipitating medium." "Artificial silk" is quite the wrong name to call this wonderful new textile as it is no more "artificial" than is steel and many other manufactured products, and it has none of the chemical and few of the physical characteristics of silk. The use of the expression "artificial silk" only keeps alive an erroneous impression of inferiority. All textile materials are named by short words and it was for that reason that the word "rayon" was introduced for the new textile industry, which is already more than three times the size of the silk industry, and today ranks only after cotton and wool in importance.

The four principal processes of producing rayon vary greatly in their chemical reactions and the machinery employed, but they are all alike in the fundamental principle of producing a solution of cellulose, pumping the solution through fine holes or jets and, as it emerges, precipitating or coagulating the cellulose into continuous solid filaments or fibres.

In order of their industrial development the four processes are: (1) Nitro cellulose. (2) Cuprammonium. (3) Viscose. (4) Cellulose acetate.

Nitro cellulose was first used to produce a continuous thread by Sir Joseph Swan, in 1883, when he made his "artificial silk" for use as filaments in his gas-filled electric lamps, but Swan fully realized the textile value of his filaments and in 1885 exhibited in London fabrics made from his yarns. This was a year before Count Hilaire de Chardonnet took out his patent, so that Chardonnet's chief claim to fame is not as the first inventor, but as the first producer of rayon for textile purposes by establishing works in France, Switzerland, Belgium and England. In this process the cellulose (usually cotton) is nitrated with a mixture of sulphuric and nitric acids. The cellulose nitrate is dissolved in a mixture of alcohol and ether and the resulting solution is spun either dry, that is into air, or wet, in which case coagulation takes place in a water or salt bath. The resulting threads are afterwards denitrated with either sodium or calcium hydrosulphide. Owing to the expense of this process it is used today to a diminishing extent.

The cuprammonium process, based upon Schweitzer's discovery of 1837, was first used to produce filaments by Weston in 1882, but it was not developed commercially until after Pauly patented his process in 1897. In this process the cellulose, again usually cotton, is dissolved in "Schweitzer's reagent," or ammoniacal cupric oxide solution. The resulting solution is then spun into a solution of caustic soda and the resulting filaments are usually stretched to increase the fineness and strength of the yarn. The copper is afterwards removed by washing the yarn with dilute sulphuric acid.

In 1892 Cross and Bevan, who had been systematically investigating cellulose reactions since 1880, discovered and patented, a method of forming a solution of cellulose, which they called "viscose," because of its distinctive characteristic. This discovery only became industrially valuable after Topham experimenting with Stern, discovered the effects of ageing, and invented his method of spinning by means of a centrifuge. In this process cellulose (which can be either wood pulp or cotton) is steeped in a strong solution of caustic soda and the resulting alkalis cellulose is treated with carbon bisulphide which converts it into a cellulose xanthate, a reddish gelatinous substance, soluble in water. The solution of cellulose xanthate, or viscose, after "ageing," to bring the solution down to the correct viscosity for squirting through the spinning nozzles, is coagulated in an acid bath. This is by far the most important process today, and probably represents about 85 per cent of the world's rayon production. It is generally considered that future developments will result from modifications and improvements of the viscose process.

The cellulose acetate process is quite unlike the other processes because the resulting yarn is a compound of cellulose, whereas all the other yarns are pure degraded cellulose with only slightly different physical characteristics resulting from their processes of manufacture. Cross and Bevan patented a process for cellulose acetate manufacture in 1894, but although it was investigated experimentally it achieved no practical success. Little in 1895, produced lamp filaments from cellulose acetate, and Bronnert in 1899 made yarns experimentally, but it was Miles, who in 1904 produced a cellulose acetate soluble in acetone, and several other solvents, who prepared the way for the later industrial elaborations. Since the war a number of works have been established to produce cellulose acetate yarns, but the production is still a relatively small one. The cellulose is first acetylated with acetic anhydride and acetic acids in the presence of a catylist such as sulphuric acid. The chloroform soluble cellulose acetate, which results, is not sufficient,y strong for rayon. If water, however, is added to the reaction solution, and this is allowed to stand, a "ripening" takes place in which the cellulose acetate becomes degraded and then yields a secondary cellulose acetate soluble in acetone in which solvent it is used for rayon manufacture. The resulting spinning solution may be spun, like cellulose nitrate, either by wet or dry processes.

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*Paper read before the British Science Guild, London.

In a short lecture a detailed description of the industrial methods employed in these four processes cannot be given, but enough has been said to indicate that their development upon a huge industrial scale must have had important reactions upon the chemical industry, especially in the production of sulphuric acid, carbon bisulphide, hydrochloric acid, caustic soda, sodium sulphate and dyestuffs. Engineering has also been stimulated especially in making improvements in filtration and pumping apparatus, ventilation and power transmission.

The manufacture of rayon is only possible as a result of the scientific developments of the last 10 years, but it owes more to science for its amazing growth than has so far been indicated. The last 150 years have seen the change over from primitive hand to modern chemico-mechanical production with a consequent enormous increase in real wealth spread through the community. Methods of transport have been enormously improved so that instead of the few traveling on horseback, by muddy or dusty tracks, the masses today journey in comfortable well-heated railway carriages or in closed road motors. ouses, offices, factories, hotels, theatres, cinemas and dance halls are all so well heated, lighted and ventilated that we are today surrounded with a sub-tropical climate. Rapid movement and this warm atmosphere have compelled a reduction in the weight of our clothing and women especially, because of their greater mobility, have demanded greater freedom in the design of their clothing. Education, sport and dancing have played their part and the cumulative result has been a demand for fewer, shorter, lighter and brighter clothes. Such a demand could not be met by the older natural fibres as the only suitable textile was silk and that could not be economically produced at a price to meet the new demand. A new textile was necessary which would be at least as beautiful as silk and yet capable of production in enormous quantities at prices which would put it within the reach of all women.

The growth of the use of rayon need not be given in detail, but today almost every item of clothing used by women and girls, from shoes to hats, contains a greater or less quantity of rayon. Two main uses should be mentioned, hose and underwear. Short frocks make good looking hose a necessity. With a reduction in bulk of clothing, frictionless, close fitting underwear that can be easily washed and laundered is essential and rayon is the only textile which fulfils these requirements. The result has been that for foundation garments rayon is now everywhere recognized as the standard material. These garments are mainly the product of the knitting industry, and the introduction of rayon has caused a surprising growth in that section of textile manufacture, a growth which has not yet reached its limit of development.

The industrial development of rayon has been quite as interesting as the laboratory discoveries which have been briefly described. Even today, after a passage of nearly 40 years, the number of really successful firms is small. The difficulties of establishing an entirely new industry are seldom realized. It is not merely a question of selecting a convenient site and ordering your buildings and machinery. In a new industry laboratory formulae have to be carefully extended for large scale production and methods of industrial application carefully thought out. Suitable machinery has to be designed, in many cases embodying entirely new principles. It must be placed to the credit of British organization, business foresight, engineering skill, textile technology and salesmanship that this country has been able to take and maintain the lead in this great nek industry. It was not only a question of producing a yarn that would hold together, the physical and chemical properties had to be investigated and developed to conform to the specific needs of various sections of the textile industry. The underlying idea in this country has always been that quality must always be improved, and only those who have had experience in the use of the early products can fully appreciate how far ahead are the present yarns.

The specialties of today are usually the standard products of tomorrow. Something of the technical developments that have taken place can be judged from the fact that rayon yarns can be produced that are two to three times stronger than the average yarn now in general use. The fineness of rayon yarns, especially of the filaments or fibres of which they are constructed, has improved to an amazing extent during the past few years. Today it is possible to produce commercially rayon yarns as fine as the finest silk and far finer than cotton. A pound weight of the finest denier yarn spun today contains about 170 miles, and filaments have been produced which are so fine that one pound would extend to over 500 miles. These rayon filaments are far finer than have ever been spun by any silkworm.

The use of rayon has had an astonishing effect upon the general condition of the textile industries. The introduction of a new material has demanded a review of methods and has acted as a stimulous to those engaged in every branch. Especially has this been noticeable in bleaching, dyeing and printing. The new material has demanded better finishes than were given to the older textiles and the result is that the whole industry has benefitted from the improved methods and the better colors which are now available. There has also been a noticeable improvement in the production of new and finer fabrics. The workers themselves have change for the better. Rayon requires more delicate treatment, manually as well as mechanically, excessive humidity is no longer an advantage, but a detriment, and in the production of the new fabrics cleanliness is essential. All these new conditions have altered the environment in which textile operations are now carried out and these changes have in every case benefitted the worker.

No official figures of employment in rayon production are available so that only estimates can be given. In the actual production of rayon about 25,000 workers are now directly engaged, but to this must be added engineers constructing the machinery, chemical workers producing the raw materials, and the far greater numbers engaged in processing the yarn for manufacture, weaving, knitting, dyeing and finishing, and making-up for sale. If all these are included, the number of workpeople in the British Isles dependent upon the rayon industry is probably at least 300,000.

(Continued on Page 43)

Power Problems Discussed by Master Mechanics

As reported last week, the meeting of the Master Mechanics' Association in Charlotte on June 11 featured three technical papers as well as an open discussion.

The complete text of these technical papers and a record of the discussion is given herewith.

H. H. Iller, former chairman, presided at the meeting in the absence of G. T. King, chairman.

After the meeting was called to order, the first paper was presented by W. F. Humbert, assistant engineer at the Carolina Cotton and Woolen Mills, Spray, N. C.

Practical Motor Application in the Cotton Mill

Electric drive has become the standard drive of the textile industry. It has gained this position because it provides greater flexibility in the arrangement of machinery, makes possible the operation of any department of the mill independently of other departments, and offers opportunities for better lighting and cleanliness in general.

Probably the most important of these reasons for the popularity of electric drive is its flexibility, the ease with which it can be adapted for the different conditions of speed and service in the cotton mill. Except at points where speed regulation is extremely important, electric drive can not usually be said to be the most efficient drive. The Standard Handbook for Electrical Engineers states the following: "If the power plant can be centrally located, the mechanical drive with a belt or rope tower is most efficient. * * * * *. The steam plant usually proves the most flexible of the several methods of power development. * * * * * *. Mechanical drive from a water-power plant is likely to prove inflexible. * * * * *. In general the loads in textile mills are steady, and there should be close speed regulation. Electric drive is in general superior from the standpoint of speed regulation, aside from the advantages of flexibility and cleanliness. * * * * *. In all kinds of textile mills anything that scatters dirt, lint,flecks, etc., becomes more of a nuisance as the goods produced become finer. * * * * *. In determining, therefore, whether to use individual drives or group drives, the presence of a belt becomes a deciding factor."

We may go further and say that the proper application of electric drive to each department of the cotton mill requires special consideration. In order to obtain the best production from textile machines, each machine must have the correct drive for its own particular characteristics. Some of the machines are more or less complicated and should be started up gradually; others may be started abruptly. Some machines may be group driven; others should have individual drive. And not only must a satisfactory motor for textile service be provided, but also the proper motor must be provided for the individual types of machinery.

The Standard Motor

In the textile mill the alternating current squirrel cage induction motor has been adopted as the standard motor. This type is known as a constant speed motor; there are few drives that require other than one speed. In this paper no attempt will be made to consider drives where varying speeds from the drives are required. The power used is practically standardized on 550-volt 3-phase 60-cycle current for all but the smallest motors, where 220 volts is used.

Opener Room Drives

In the usual cotton mill process the first application of electric power is found in the opener room. Here an automatic cotton feeder requiring 1-2 horsepower discharges to an opener, or Buckley type beater, for which an allowance of from 2 to 4 horsepower must be made. The opener in turn discharges the cotton to one or several vertical openers in series, each of which at 700 R.P.M. requires 3—5 horsepower. It has been general practice to install one motor to drive a line shaft in the opener room, from which the different machines were belt driven. Present day practice tends towards one motor to drive the feeder and opener; and for the vertical opener a vertical motor, 5 horsepower at 720 R.P.M., is direct connected to the beater shaft, suitable framework for mounting the motor being provided by the opener manufacturers.

The Picker Room

In going from the opener room, the cotton passes through a conductor pipe to a condenser in the picker room, being drawn by a motor-driven fan beyond the condenser. The condenser itself requires but little power, a 1½ or 2 horsepower motor ordinarily being ample. The power required to drive the fan varies with size of fan and speed necessary to handle the cotton; some installations require 25 horsepower; however, often a 10 horsepower motor can be belted to the fan and condenser satisfactorily.

The double section breaker picker consisting of an automatic feeder and two beater units requires about 6—8 horsepower, each beater requiring 3 or 4 horsepower. A 10 horsepower 1800 R.P.M. motor mounted on A-framework, built up over the picker by the manufacturers, makes a very satisfactory drive. The motor is connected to the picker pulleys by belts from a double pulley on the motor shaft. A drive with slightly less vibration, perhaps, may be made by extending the motor shaft at one end with an outboard bearing and driving one beater from each side of the machine. The double pulley drive is commonly preferred. The intermediate and the finisher pickers require 3—4 horsepower each and are usually driven by individual 5 horsepower motors mounted as on the breaker picker.

Group Drives for Cards

It has been almost universal practice to employ group drive for cards. A few mills have tried individual drive. The usual custom is to drive the cards in groups requiring 25 to 50 horsepower motors, though in some instances 75 horsepower and even 100 horsepower motors have been used. The amount of power required to drive the cotton card is partly governed by the amount of stock passing through it. When group driven, the usual allowance is ¾ to 1¼ horsepower for a 40-inch card and up to 1½ horsepower for the 45-inch card. As the starting load may be several times the running load, one manufacturer states that it is customary to recommend 1½ horsepower motors on the more lightly loaded cards when individually driven and 2 horsepower motors on the others. These individual motors must have a special high starting torque, a condition that lowers the running efficiency somewhat. Where cards are individually driven, it is practical either to drive by chain or to use pinion and gear drive. The motor is usually mounted on a bracket attached to the card. As previously stated, however, group drive is considered standard practice for cards at present, and it is apparently the most practical drive.

Drawing frames are ordinarily bought with 6 deliveries, and more than one frame may be connected in line with their drive shafts coupled together. Older custom is to drive the drawing frames from overhead shafting, allowing 1 horsepower for 4—6 deliveries. Usually two to four frames were connected in line and driven by one belt. In some cases for single frame drive 1½ horsepower motors connected to the drive shafts by spur gearing or V-belt drives are said to have proved feasible. Where several frames are in line with their drive shafts connected together, a modified individual drive may be adopted by driving the line of machines from a motor mounted at one end. An illustration of the latter idea would be, say, 24—30 deliveries driven by a 5 horsepower motor.

Fly frames individually as a rule do not consume very much power. Group drives with quarter-turn belts have proven very successful under proper conditions. This is economical in installation as well as in operation. Two-frame and four-frame drives are satisfactory. Individual drives for fly frames are said to be growing in favor. Motors for individual drives may be connected by means of gears, chains, or V-belts. One motor manufacturer states that with the general number of spindles their common practice is to recommend on individual drives 2—3 horsepower on slubbers, first and second intermediates, and roving frames. Tests made by the writer indicated that this would hold good for group drive also.

Four-Frame Spinning Drives

The amount of power used in the spinning room may be 30 per cent to 50 per cent of the whole power consumed in the mill. The load is practically continuous and varies little. Various types of drives are at present in use. The old group drive is being displaced in electrically equipped mills. Four-frame drives are used in many mills; and, on account of better power factor and operating efficiency of the motor, lowered first cost, ease with which speed changes can be made, and the smoothness with which the frames may be started up, are preferred by many practical mill men. This drive is made by extending the motor shaft and using double pulleys or two separate pulleys at each end. The motor is mounted on the ceiling and drives down to four frames by belts. The cross alley is determined by the distance between motor bearings. An adaptation of this drive is what is called Universal drive. In this drive the motor shaft is extended at one end only and an outboard bearing used. The pulleys are placed on the shaft extension and may be located to suit the alley desired. Universal drive is generally not considered as satisfactory as straight four-frame drive. For four-frame drive the usual number of spindles per frame it is customary to install a 20 or 25 horsepower motor with a speed of either 1800 or 1200 R.P.M. For heavy service the 25 horsepower 1200 R.P.M. motor usually gives less trouble, needs less attention, and is not apt to be overloaded as the frames get older.

Individual Spinning Drives

Individual drive is being used on the more recent spinning-room installations. The motor may be coupled directly to the spinning-frame shaft, or it may be connected by means of chain or V-belt drive. The direct connected motor is used only where practically the same number of yarn is run all the time and the motor speed is suitable for the cylinder. Where changes in spindle speed will be required, either the chain or V-belt drive may be used. Though the power consumed may be under 5 horsepower with the frames in good condition, the size of motors used on individual spinning drive is usually 7½ horsepower; though occasionally for light work 5 horsepower may be employed. The magnetic switch with shipper rod control is now generally recommended. Disadvantages in individual drive are the sudden jerk on the frame when power is turned on the motor and the necessity of jogging in and out the switch by the operatives. The sudden jerk in starting is said, however, by V-belt manufacturers to have been largely overcome by the use of their product.

When twisters are used, they are driven in the same manner as the spinning frames. Power requirements, however, may be different. Five horsepower to 15 horsepower motors are commonly required on individual drive. Number of yarn, weight of spindle, and number of ply will all govern to some extent the power requirement. Each case should be given individual study. Normally, 1 horsepower is allowed for 35 to 50 spindles.

Spoolers require very little power, 1 horsepower being ample in most cases for 100—200 spindles. Either group or individual drive may be employed on spoolers. For individual drive the motor is mounted on a bracket provided with the machine. Either a 1 horsepower or a 1½ horsepower motor is commonly required. Cone winders are driven in the same manner as spoolers, but the power requirement is greater. On test of Foster cone winders loads ran about 3½ horsepower. Five horsepower motors are provided for individual drive and are connected by chain, belt, or gear. A positive drive here is said by some to be an advantage.

Warper and Slasher Rooms

Warpers are largely belt-driven in groups, though individual drives are now being installed. Beam warpers require about ½ horsepower each. For some higher speed warpers it was found necessary to provide up to 3 horsepower. One horsepower is recommended for ball warpers.

In the older installations slashers are driven by belts from overhead line shafting. It is becoming modern practice to install a motor for each slasher. The usual installation requires 1½—3 horsepower to drive the slasher and its sizing tubs. On some recent heavier machines, however, 5 horsepower has been provided. Usually one fan is connected to remove the vapor and loose material from a group of several slashers. This power item varies, but a fan of such size as will require a 15 horsepower motor will take care of 2—4 slashers satisfactorily under ordinary conditions. The type of drive here is entirely optional.

Electric Drive in Weave Room

In the weave room, from an economical viewpoint, the most expensive and inefficient application of individual motor drive is really from an operating standpoint the most practical application in the entire mill. Overhead shafting is objectionable on account of liability of damage to cloth from oil, grease, or other dropping matter. As the looms are continually being stopped and started, belts will slip unless watched closely. Belts from overhead interfere with proper light distribution. For these and other reasons the adoption of individual-motor drive for looms has been almost universal in the electrically-driven mill.

A special enclosed motor has been developed by the electrical manufacturers for the loom. It is mounted at one end of the loom on a bracket or support furnished by the loom maker and connected to the loom by pinion and gear drive. Special loom motor switches are mounted on pedestals at the side of the loom and wired in conduit from below. For the ordinary run of product, a ½ horsepower motor is installed on looms up to 45 inches in width, ¾ horsepower on looms 45 inches to 90 inches, and 1 horsepower on looms over 90 inches wide. This rule is not set, however. The starting load of the loom is considerably more than the running load; therefore a liberal allowancve in motor size must be made.

Either group or individual drive is found in cloth rooms. Individual drives are probably to be preferred on account of their added cleanliness. The brusher ordinarily consumes 2—5 horsepower; inspection tables require ¼ horsepower to ½ horsepower; and folders may use ¼ to ½ horsepower. Common baling presses require 5—7½ horsepower motors. While, on account of their slow speed, belts in the bloth room are not ordinarily objectionable, anything likely to throw lint and grease should be avoided as much as possible.

Summary

The preceding represents what has been considered good practice in a number of mills. No hard and fast rules regarding power requirements can be made. The only sure way to ascertain the power required to drive a machine in a mill is to take a wattmeter test of the motor driving the machine. If there is any question regarding the size of motor required for a given drive, a motor should be installed temporarily and a test made. In new installations the machinery builders commonly recommend motors that are of ample size. It is, of course, wise to check up on their statements where practicable.

In summing up we should say, perhaps, that the standards of today will not be acceptable tomorrow. The tendency seems more and more to bear towards individual drive on every machine. What the next change will be we can not say. It largely rests upon the mechanics of the mill to discover the good motor applications and to weed out the bad. In this time of competition, what we learn today we must use today. The textile industry is passing through a changing era—I almost wrote revolutionary era.

CHAIRMAN: Are there any discussions on the paper just read by Mr. Humbert?

There is one question I should like to ask Mr. Humbert. I did not understand very clearly what was said about the application of electric drive to slashers. I should like you to make that a little clearer, Mr. Humbert, if you will—just how you drive the slasher and the mixing kettle along with it.

MR. HUMBERT: That is a bad installation, I think almost anyone will admit. In most of our drives we have a group drive down to the slasher and also to the mixing tub. I think from what I can gather where they have one motor for each slasher they do the same thing.

CHAIRMAN: If I understand you correctly, your application of the electric drive to slashers was for a group of slashers?

MR. HUMBERT: Yes. I did say that one motor for each slasher was coming into use. That was taken, however, from the manufacturers.

CHAIRMAN: Do you know how that is applied?

MR. HUMBERT: I was told by one concern just what I told you, that one motor was belted down to each slasher and the slasher and tubs were driven by one shaft.

JOHN H. FOX, Engineer, Duke Power Company, Charlotte, N. C.: Is it wise to use 1800 R.P.M. motors on spinning?

MR. HUMBERT: Are you asking the meeting or asking me? We have used both. We have had some trouble with 1800, while in other cases they have been satisfactory. It depends on the load. For heavy loads use 1200; for light I think 1800 is all right.

MR. FOX: That depends on the load.

CHAIRMAN: I think so, too. Personally, I like the 1200 R.P.M. motor best for spinning drive. Mr. Fox, what do you know about it?

MR. FOX: The trouble with the 1800 R.P.M. motor has been because of the relation of the cylinder speed to the motor speed. The usual cylinder speeds are running about 1000 or 1200, are they not? When you get a pulley six or seven inches in diameter on a motor you have to have a pretty good width of belt. In fact, you have to run two or three inch two-ply belt if you are going to get any effective load out of it at all. The result has been that the 1800 motor has not proved satisfactory—that is, where you are spinning anything from 30s up to 80s. When you get down to 10s, where the cylinder speed is low and the ratio does not change much, you can probably use 1800 R.P.M. But, based on lots of complaints that have been made, I think the 1800 R.P.M. motor is a motor to be avoided.

CHAIRMAN: Personally, I agree with Mr. Fox. The pulleys are so small that the folks in the spinning room have their belts so tight that it gives lots of trouble.

What type of starting switch do you use for starting your spinning motors? Mr. Queen? I know you have been there.

Magnetic Switches

G. C. QUEEN, Master Mechanic, Oakland Cotton Mills, Newberry, S. C.: We use the G. E. magnetics on the four-frame drive.

CHAIRMAN: What size motors?

MR. QUEEN: 20 to 25 on the four-frame drive; 7 and 7½ on the individual drive. We have the fuse disconnected, like all of our magnetics, for protection. We did have the old auto starters. They were getting old, and when it came time to change we tried to put in what we thought was the best thing we could find, and that was the G. E. magnetic.

CHAIRMAN: Is there any advantage in having distance starter on a four-frame? I have no doubt some of you have that type of starting apparatus on your spinning drives.

Maintaining Voltage

MR. FOX: The reason that there ever was a compensator or an auto starter developed was because the power companies raised a fuss about the starting current. When you threw your motors on the line they took a lot of current out and someone else's lights would dip. The power companies insisted that you have a resistor on the line so as to bring that current up gradually. We do not give a darn what you do with the four-frame motor. Bear in mind that the only reason you have a compensator in there is to help the power company to maintain its voltage. Isn't that a dangerous statement for a power man to make? But it is true. The only reason for a compensator was to prevent a rush of current out of our lines and interference with someone else's service next door. For years I have put 20 horsepower four-frame drives in without compensators or anything else, and I will tell you why. When the four-frame drive was developed, we found this peculiar thing in relation to it and the individual drive. The individual drive has to start that cylinder up, with all those spindles, right in the beginning; it has to start that load; but the four-frame drive has no load to start but four loose pulleys. Therefore on the four-frame drive the starting torque, for the power to start over, is less than on the individual drive. Therefore there is not the need for a compensator on a four-frame drive to throw across the line. I am speaking now as a power representative when I say that you can throw a four-frame motor across the line without a compensator.

CHAIRMAN: Mr. Queen, what happens when you throw your magnetic switches in without the bolts across the loose pulleys? Do you have that happen sometimes?

MR. QUEEN: Yes, that happens. It kicks out the switch.

MR. HUMBERT: That is about the only thing we don't have trouble with.

Oil From Switches

CHAIRMAN: How many of you have had kicks from your boss spinners about the oil in your compensators and boss switches dropping on the floors:

MR. QUEEN: That was one of the reasons why we put in 43 magnetic switches.

CHAIRMAN: Come on now; I know some of the rest of you have had that trouble.

Individual Drive and Power Load

MR. FOX: It is one of the most troublesome things in the mill, and here is the place to thresh out these questions.

I want to take issue with some of what was said in this paper. I am very much concerned over the question of individual drive in relation to loads. I am concerned in two ways. One is that I don't believe we are getting out of our individual drive and loom drive what we thought we were going to get. In the first place, our expenditures in investment, our capital charges for installation, are pretty high; and there is a question whether you can not afford to build more looms, more loom space, and pay more for labor than for this capital charge. But that is not the point I wish to raise. In discussion with some of our best engineers in the matter, it is clearly seen that we have a positive drive on the end of a loom and a variable condition in between there and the crank shaft. I refer to the friction drive on the loom. Now, we are spending a lot of money to put a positive drive on the end of a loom, and yet we have in between that drive and the loom a friction. Now, you all know the type of friction drive as well as I do. I assume you boys are raising the very dickens with certain loom fixers, and your stock room shows there are a great number of lacers or frogs that need replacing. The first thing the loom fixer starts to monkey with is that friction drive. If we do not have that positive clutch movement on that friction drive, our looms are not giving us the results we ought to be getting. How to remedy that condition is having quite a little attention from consulting engineers now. In other words, the friction of your looms is almost directly the factor of the efficiency of your loom fixer. It is possible to set that friction drive as a positive drive, but it does not mean a darn. I want to bring that before you, because you boys have to solve it. It is in the minds of the men who are studying this that the friction drive has almost made the loom-drive question. If any of you have anything to say about it, I should like to hear it, because we are thinking about it very seriously.

CHAIRMAN: Right along that line I had an experience with a new installation of looms with direct-connected motors. Immediately those looms were started up we had lots of trouble with fuses blowing. On inquiring into the cause, we found the loom fixer had set these looms so the brake of the loom took hold just before the friction let loose. It took a long time to find that, but we did find it eventually. Maybe some of you have had the same experience or some other experience that will throw light on what Mr. Fox has said. If so, let's hear from you.

Power Factor and Individual Drive

M. J. MITCHELL, Master Mechanic, Mollohon Mill, Newberry, S. C.: I should like to ask a question. Would you get as good a power factor from the individual drive as you would from the group drive?

CHAIRMAN: If Mr. Mitchell had not asked that question I was going to.

MR. HUMBERT: I should like to ask Mr. Fox if that was not largely behind his talk on loom motors.

MR. FOX: No, sir. We are concerned about the power factor because of other reasons. It is not because of transformer installations, because our rule, Mr. Chairman, is to put two transformers in that will carry the load; and where we put in transformers the power factor does not bother us. That was not the idea behind my statement, because the attitude of the Duke Power Company, gentlemen, is this—and I can speak with some authority. We want the Southern mills to be so efficient that no other mills in the country can touch us. That is our theory, and we will do anything in the world to increase the efficiency of our mills. I say *our* mills, for that is the way we look upon them. The power factor does not bother us. It is not stated in our contract. Naturally, you boys from down in Georgia and Alabama have the power factor to bother with, but not in the Carolinas. I should like to disclaim that the power factor was in my mind at all. We have a mill or two up here in North Carolina with individual drive spinning. Why, the power factor falls 62 per cent in that particular building, but over in the other building rises to about 82 per cent. We just average up and so go ahead. It does play the dickens with the power factor.

MR. HUMBERT: I think Mr. Fox has covered the subject very well so far as the power factor is concerned. Our usual power factor runs 68 to 72 per cent where we use a large number of individual drives for the mill.

Magnetic Switches and Power

MR. MITCHELL: Talking about magnetic switches, I want to ask some of the gentlemen here who have magnetic switches about how high they would want horsepower with magnetic switches, what size motor, and if they have ever had any trouble with contacts burning. I should like to know the advantage over the compensator.

CHAIRMAN: Mr. Queen, have you had trouble with burning contacts?

MR. QUEEN: We don't go over 25 horsepower. Don't put the magnetic on a hard starter—on a heavy starting load. All my magnetics are on light starting loads. We have had no trouble with burning contacts, but we have not had the magnetics in long enough to tell yet. We did have 7½ horsepower motors on spinning drives that started a little heavy; I let them go six months before I dressed them and found them not really bad then; but 7½ horsepower is my limit on individual drive.

P. L. HILL, Master Mechanic, Brown Manufacturing Company, Concord, N. C.: Do you use those switches on any kind of voltage?

MR. QUEEN: I use them on 550. That is our standard voltage.

W. G. YOUNG, Master Mechanic, Kendall Company, Inc., Paw Creek, N. C.: Has anyone had any trouble with magnetic switches on pickers with the picker hand rocking the switch? I have them and have had trouble with them.

CHAIRMAN: Has anyone else had that trouble? Raise your hands. No one else seems to have it. Tell us something about it, Mr. Young.

MR. YOUNG: I can not tell you what to do, unless you can stop the picker hand from rocking those switches. Of course, the machines are very heavy—10 horsepower—and either you burn the belt up or something will break loose. The picker hand will rock the switch until he gets the machine in motion, and as a result they have burned up several switches.

Burned Out Switches

CHAIRMAN: We have had a good deal of trouble with burned switches on four-frame drive with compensators. It seems to be the natural inclination of everybody in the mill who does not know better to ease the contacts in rather than go in positively.

MR. YOUNG: I have about made up my mind that the magnetic switch is not a proper switch for a picker. We can't tell the G. E. that, but I have come to that conclusion.

R. B. HORNING, General Electric Company, Charlotte, N. C.: I think you will find that where machinery is heavy to start throwing the motor on the line is likely to cause several things. The belt will fly off, or something else will happen. If the switch is laid fairly close it may burn up the relay. So on some of the picker-room applications we are recommending compensators. For a straight beater, opener, etc., we use a magnetic switch very successfully.

MR. FOX: About what is the average size motor to put on a magnetic type switch?

MR. HORNING: We have put on up to 4000 horsepower.

CHAIRMAN: What was that application:

MR. HORNING: Steel mill drive. There is no limit, I think.

Likes Magnetic Switches

L. M. KINCAID, Master Mechanic, National Weaving Company, Lowell, N. C.: In our weave room we have 602 looms, I believe. Sometimes the power goes off, of course, as you all know; it is on and off right quick, you know; and sometimes they would push the buttons. I have had those magnetics there, and they have given us exceptionally good service, and they have been misused in that way I know several times. I noticed there was one defective switch, but it did not cost the company anything to replace it. That is a good bit of a shock, as you know. Of course, the weavers want to get started as soon as they can. Sometimes they put on the full load. In five years we have not had any trouble except with one defective switch, which they replaced without any argument.

CHAIRMAN: Mr. Kincaid raised a point right there which I wanted to bring out. That is the question about providing yourselves with no-voltage release to avoid the trouble he speaks of, when the power goes off and is suddenly thrown back on. I know some mills have paid no attention to the matter of providing themselves with no-voltage releases for the several circuits. Personally I have always believed in that and have provided myself with them wherever I could.

MR. FOX: I should be glad if we could let the discussion of this go until a little later, Mr. Chairman, if there is no objection.

CHAIRMAN: We will go on to our next paper, which is to be presented by W. W. Hanks, of the Charlotte Electric Repair Company. Mr. Hanks' subject is temporary repairs to electrical equipment.

Temporary Electrical Repairs and Field Maintenance

When asked by your chairman, Mr. George King, to talk to you on the subject of "Temporary Repairs of Electrical Equipment," the subject at first appeared simple and easy to handle; however, when we consider that there is no well defined line drawn between temporary and permanent repairs, and when we take the definition of "Temporary" to be "Not lasting or transient," there arises a doubt in my mind whether temporary repairs, if successful, are not permanent, and whether permanent repairs are not temporary? Therefore, I trust that I

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may be pardoned if I do not confine myself too closely to the strict interpretation of the subject.

A serious phase of this subject is that electricity is a dangerous agency, and if not properly handled may cause serious injury to person or property. I do not, therefore, wish to be put in a position of recommending some temporary expedient to provide for an emergency, as being safe or desirable under ordinary conditions. For instance, the bridging of a blown fuse would certainly be a simple and easy method of restoring service, if no replacement fuses were at hand. This method, although effective, can hardly be recommended from the standpoint of safety, neither is it excusable as all regulated maintenance departments should have duplicate fuses on hand.

Mechanical and Electrical Repairs

Investigation and repair work may be divided into two sections: Mechanical and Electrical. It has been said that "90 per cent of electrical troubles are mechanical." Mechanical troubles and remedies are both usually apparent, and as mechanical men your knowledge of machinery and machine repairs would suggest what should be done to repair the trouble. Electrical troubles are usually not so apparent, but, must be searched out by a process of elimination until the cause is determined. This takes experience and a practical knowledge of the apparatus in question. As the field of electrical troubles is almost unlimited, and repairs, even if made in a temporary manner, would depend upon the material at hand, any definite rule of procedure would be difficult to suggest.

Therefore, in this paper, I believe it would be advisable to confine my remarks largely to the trouble common to the class of apparatus you are most interested in: motors and their control equipment. Within the motor itself most of the troubles appear in the winding, such as complete "burnouts," single phase burnouts; "shorted coils," short circuits between phases, grounds, etc. In the first two cases a complete rewinding of the motor is necessary.

Clearing Grounds

Grounds may be cleared in several ways—perhaps the easiest method is to cut out the grounded coil. This may be done by cutting loose the coil leads where they connect to adjacent coils in series with it, closing the circuit with a jumper between the points where the coil was disconnected. The defective coil should be cut open at the end or both sides cut off close to the stator iron because of the fact that it may contain or develop short circuited turns which lying in the magnetic field would cause heating and consequent damage to the balance of the winding. Grounded coils may sometimes be cleared by driving insulation (fibre or mica) in the slots between the coil and the iron. In open slot machines the damaged coil may be lifted from the slot, retaped, and new slot insulation replaced in slot. This operation should not be undertaken if the insulation is dry and brittle as more harm than good may result even though the work be done with extreme care and skill.

Short circuited coils should be cut out of the winding as described in connection with grounded coils.

Short circuits between phases when they occur between adjacent phase coils at the end of the winding may be cleared by separating the phase coils and inserting insulating material between them. If the short is caused by a ground in each of two phases, the defective coils in their respective phases must be cut out, or the grounds removed as previously described.

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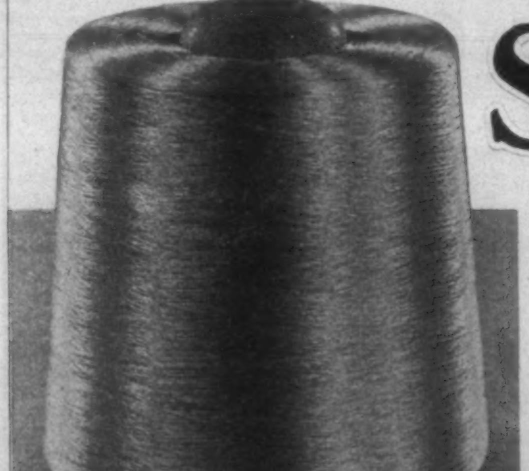

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Power Problems Discussed by Master Mechanics

(Continued from Page 14)

"Patching" Old Motors

At this point I venture to express an opinion, based on personal experience—that it rarely pays to "patch" a winding, in an old motor. By "patch" I mean to replace a number of defective coils with new ones. My reason for this statement is that because of the necessity of raising a certain number of the good coils in order to replace the defective ones, these coils due to dryness and brittleness of the insulation are sure to be damaged with the great possibility of their breaking down when the motor is put back in service. Also if the motor has been damaged by lightning, the insulation of the whole winding has been subjected to a great strain and a part is its life destroyed. The extent of the damage of course cannot be determined except where it shows up as grounds or short circuits in the winding. When such troubles occur it is better to clear them by cutting out coils or other methods as previously suggested, allowing the motor to operate in this condition until further trouble develops, at which time, other coils may be cut out, or the motor rewound as conditions may dictate.

Cutting Out Coils From Motor

The question is often asked, "How many coils can be cut out of a motor?" It is hard to give a definite answer to this question, as it depends to a great extent how the coils are distributed in the winding. I have known motors to operate successfully with a complete phase pole cutout. Motors with a number of coils cut out have continued in operation for years without giving further trouble. There is of course a limit to the number of coils that can be cut out as this equivalent to raising the voltage which will cause heating.

Troubles occurring in wound rotors can be treated in a manner similar to stator windings. Squirrel cage rotors give very little trouble, but, sometimes develop broken bars or poor contact between the bars and the end rings. This trouble can be effectively cured by welding with an acetylene torch and bronze welding rods. This trouble is indicated by the motor running below speed with normal load, voltage and frequency. It is interesting to note that the load on a squirrel cage motor can be determined within fairly close limits by the speed, assuming the rotor to be in good condition and the voltage and frequency to be normal. The motor slip, or the difference between its no-load and full-load speed, is directly proportional to the load. For example a motor rated at 1730 R.P.M. full load speed, running at 1765 R.P.M. would indicate that the motor was operating at approximately 59 per cent load.

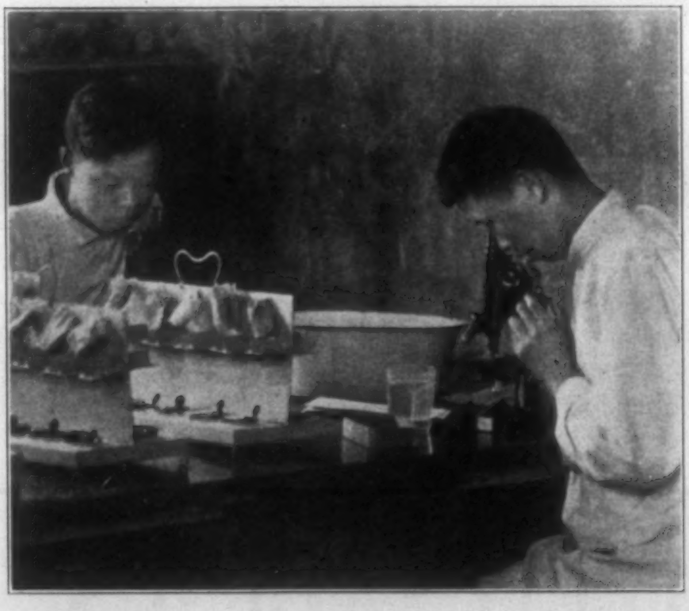
Motor Control Equipment

Faults in motor control equipment such as compensators, magnetic and manually operated switches, drum controllers, etc., are generally of a mechanical nature and the faults can usually be located by inspection or by simple tests with a magneto.

Troubles in this class of apparatus consist of bad contacts, broken leads, burned out auto transformer coils or operating coils, etc. Burned out coils either have to be rewound or replaced by factory coils. Worn or burned contact parts can be built up with an acetylene torch and bronze welding rods. Bad terminal boards may be

(Continued on Page 18)

...and clothing must keep apace



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Power Problems Discussed by Master Mechanics

(Continued from Page 16)

temporarily replaced by using dry hard wood boiled in linseed oil or paraffin.

Motor troubles are sometimes harder to locate than they are to repair, therefore, a few suggestions in this connection may be helpful.

A short circuited coil becomes hot in a short time if the motor is run light on normal voltage and can be detected by feeling the winding with the hand immediately after starting the motor.

Grounds and open circuits can be located with some form of circuit testing device such as a magneto or a lamp in series with 110-volt supply. A source of D. C. voltage is desirable in testing large machines for grounds as a magneto, or other A. C. supply may give a false reading, due to the capacity of the winding. To make a test for grounds, connect one wire of the magneto to the frame of the machine and the other to the terminal leads of the winding, if the bell rings there is no doubt of a ground in the winding. The next step is to determine the exact location of the ground. A ground can generally be made to show up by passing current through the grounded points by means of lamps or other resistance in series with a low voltage supply. The current will heat the point of the contact causing the ground to heat so that its location becomes evident through smoke or a slight arc. If the ground cannot be located in this manner it will be necessary to open the winding in several places, and each section tested to find the grounded section. The grounded section is again divided in still smaller sections until the defective coil is located. In a star connected winding each phase can be opened at the star point, and each phase tested separately. A delta winding should be opened at one terminal of the delta. In a winding with a number of parallel circuits it will be necessary to break up the winding into its parallel groups, and each group tested separately.

Open Circuits

The same process of elimination by breaking the winding up into smaller and smaller sections may be followed in locating "open circuits." To test for open circuits, first open the phases and separate the parallel groups. Each circuit can then be traced by "ringing out" with a magneto. Contact with the winding being made with a sharp pointed instrument similar to an ice pick pushed through the insulation on the coil stubs.

Tests for Condition of Insulation

While we are on the subject of testing, I wish to mention two tests which are used to determine the condition of the insulation. The first is a high potential test which measures the ability of the insulation to withstand voltage strains which occur between the winding and the ground. This test is called the dielectric test and in accordance with the Standardization Rules of the American Institute of Electrical Engineers is made by applying for one minute between the winding and the ground an A. C. voltage equal to twice the normal voltage of the machine, plus 1000 volts—the second test measures the insulation resistance and is usually made with a "Meggor" which indicates directly on the scale of the instrument, the insulation resistance in megohms.

Commenting on these two tests, the standardization rules of the American Institute of Electrical Engineers says: "The insulation resistance of a machine at its

(Continued on Page 21)

Southern Textile Association Program

HUMAN relations will be the principal theme at the coming meeting of the Southern Textile Association, to be held at the Kenilworth Inn, Asheville, N. C., on July 5 and 6. Several of the addresses will feature the subject from various angles and an unusually interesting program has been arranged with this idea in mind.

The entertainment features will have a prominent place upon the program. Much interest is being taken in the golf tournament and all members and guests who play golf are urged to bring their clubs. In addition to the golf tournament, a number of unique contests are being arranged for those who do not play golf.

The full program as announced by Secretary J. C. Cobb is as follows:

Friday, July 5, 10 A. M.

Invocation.

Address of Welcome—E. M. Bearden, Mayor, City of Asheville, N. C.

Response—H. G. Winget, Supt., Victory and Winget Yarn Mills, Gastonia, N. C.

President's Address—Carl R. Harris, Supt., Erwin Cotton Mill, Cooleemee, N. C.

Address — "American Constitution and American Ideals," Col. C. Seymore Bullock, South Bend, Ind.

Address—Rev. N. C. Duncan, Cooleemee, N. C.

Report from Chairmen of Sectional Divisions:

Carders' Section—J. O. Corn, Supt., Hampton Dept., Pacific Mills, Columbia, S. C.

Spinners' Section—Carl R. Harris, Supt., Erwin Cotton Mill No. 3, Cooleemee, N. C.

Weavers' Section—E. A. Franks, Supt., Dunean Mills, Greenville, S. C.

Dyers', Finishers', Bleachers' and Mercerizers' Section—Paul F. Haddock, Sou. Mgr., A. Klipstein & Co., Charlotte, N. C.

Master Mechanics' Section—G. T. King, Supt., Power, Lancaster Cotton Mills, Lancaster, S. C.

Report from Alabama-Mississippi-Louisiana Division of Southern Textile Association—D. Singleton Cook, Agent, Pepperell Mfg. Co., Opelika, Ala.

Report from Eastern Carolina Division of Southern Textile Association—D. F. Lanier, Supt., Oxford Cotton Mills, Oxford, N. C.

Report from Texas Textile Association—Hugh S. Clarke, Gen. Supt., C. R. Miller Mfg. Co., Dallas, Texas.

Friday Afternoon.

Golf Tournament and other forms of entertainment.

Friday afternoon will be open. However, there will be a golf tournament. Prizes for the first, second low gross, first and second low net and booby prize will be awarded at the banquet Friday night. All members of the Association are eligible.

The tournament will be conducted by a golf committee, with Paul F. Haddock, Sou. Mgr., A. Klipstein & Co., of Charlotte, N. C., as chairman.

L. E. Wooten, Vice-President, Lestershire Spool & Mfg. Co., Charlotte, N. C., will make arrangements for other forms of entertainment.

Friday Night.

Banquet—Kenilworth Inn, 7 o'clock.

Address—T. M. Marchant, Pres. and Treas., Victor-Monaghan Co., Greenville, S. C.

(Continued on Page 30)

Better Work
With Stanley *"Eversafe"*
Bale Ties

because workmen can freely grasp the Round Safety Ends without fear of cuts or scratches.

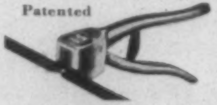
Stanley "Eversafe" Bale Ties eliminate the dangers of these injuries and resulting infections because of their Round Safety Ends, Round Safety Edges and Rust Resisting Japan Finish.

Designed to protect the workmen, the new "Eversafe" Bale Tie has received the enthusiastic approval of Safety Engineers, also Leading Liability Insurance Companies. It will pay you to try it.

The Stanley Works, Box Strapping Division
New Britain, Conn.

Faster, Better and Safer Work with Stanley "Eversafe" Bale Ties

Patented



Stanley Eversafe
Round End Cutter
This ingenious device cuts two Round Safety Ends at one clip. A wonderful improvement over ordinary shears.

The Stanley Works
Box Strapping Division
New Britain, Conn.

Gentlemen:

I would like to know more about your new "Eversafe" Bale Ties. Send your booklet ST7 giving full description.

____

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PRACTICAL DISCUSSIONS BY PRACTICAL MEN

Technical Operation of Spinning Mules

Editor:

What are the technical motions of a cotton spinning mule in making one round of running out and in?

RING SPINNER.

Answer to Trouble.

Editor:

It is difficult to run waste entirely without some good cotton. This depends greatly on the grade of waste, but most cases I have known to make a fairly good yarn uses some cotton for strength and to get the waste to run through the mill. I do know a few mills who are running waste and making a good yarn by using the Breton Minerol Process. With this method they spray a lubricant on the stock, which permits better working of waste fibres. This is not yet commonly known among the mills. Write to the Bulletin and perhaps they can tell you more about it.

JIMMY.

Answer to T. A. B.

Editor:

In answer to the following question by T. A. B., "I would like to know what causes cockled yarn and also what causes roving to lap around the middle steel roll," I will say the cause of roving sticking to the middle steel roll is usually as follows: Dull steel roll flutings, burred steel roll flutings, dirty steel roll flutings, too much weight on top rols, cotton seed particles in the roving, too much oil on top rolls and on steel roll necks in their bearings.

As to what causes cockled yarn, the chief causes are as follows: Creased rolls, over-moistened air, rolls too close, cotton staple too long, mixed staples, slack speed, stirrups resting or rubbing against steel rolls, weight lever resting on the back board, dry rolls, dry saddles, dull flutings, dry spindles, slack bands, travelers too light, bobbins too full and rubbing against rings, oil on the rings, roving twisted too hard, mixed rovings, dirty top rolls.

CHIEF.

Answer to T. S. C.

Editor:

I note that T. S. C. finds his spools too small after changing his yarn number. He does not state the length of the spool traverse. I suppose it is of the common 6-inch type. Now, what I would do is to increase the traverse of the spools up to 7 inches. This will increase the yarn holding capacity by 1-6, or 16 2-3 per cent. This will reduce the re-creeling of the twisters 16 2-3 per cent. It will also increase the production and improve the quality without making any changes in the machinery at all.

CAL.

Answer to Yarn.

Editor:

As excessive twist weakens yarn as much as insufficient twist, Yarn wants to know how he can tell when he has sufficient twist or when his twist is "just right." There is no such a thing as having the twist "just right." But experience teaches the careful yarn maker to know when he has the twist so nearly right that it is good enough. The best test of having the twist as nearly "just right" as it is possible to have it, is to watch the breaking strength. But the experienced man can anticipate the strength test by noticing several other details. He can tell by the looks of the yarn, by the feel of the yarn, and the way it spins and weaves. And the strength test usually confirms his good judgment. Knowledge, practice, experience and good judgment come first, and this shows a man why some cottons may require more twist and some less twist.

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Keeping Borders Straight on Turkish Towels.

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I wish to ask what is the best method for keeping borders straight on Turkish towels until dried, where goods are pulled from finish bins through blue mangle and into the dryer in a single operation. In connection with this question, will say that we find, by pulling goods from finish bins through water mangle into a box and then from box through blue mangle into dryer that we are able to keep the borders straight, but don't like to use that method because of the additional operation. We would be glad to hear what some of the towel finishers have to say along this line.

TURKISH TOWEL.

Answer to Mfgr.

Editor:

In answer to Mfr., who desires to know if a coarse and fine netting can be woven together and simultaneously on the loom. Yes, sir; this can be done. The coarse fabric can be woven to the fine fabric, and it will be two different pieces of goods virtually woven at one time, and yet stitched together by the loom so as to form a unit fabric. The fine cloth can be woven on the top or the coarse on the top. The yarns, coarse and fine, will have to be on separate loom beams, and a separate set of harness for each cloth. But the mechanism can be so timed that the two fabrics can be stitched together at as close intervals as wanted.

DESIGNER.

Answer to Price

Editor:

In answer to the question by Price, who wants to know how to fix the price of cotton mixture of cotton that cost 25 and 28 cents a pound, I give the following:

100 lbs. cotton at 28c	2.80
200 lbs. cotton at 25c	5.00
	7.80

$7.80 divided by 300 lbs. makes a price of 26c.

One bale of 28c cotton and 2 bales of 25c cotton will give a mixture very close to 26c cotton. If all bales weigh 500 lbs., the price will be exactly 26c.

150 lbs. cotton at 28c	4.20
100 lbs. cotton at 25c	2.50
	6.70

$6.70 divided by 250 pounds makes a price of 26.8c.

Three bales of 28c cotton and 2 bales of 25c will give a mixture very close to 27c.

F. P. L.

Power Problems Discussed by Master Mechanics

(Continued from Page 18)

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$$\frac{\text{Insulation resistance in megohms} \times \text{Normal terminal coltage}}{\text{Rated capacity in kv.-a. plus 1000}}$$

a megohm being 1,000,000 ohms and the symbol kv.-a. or kilovolt-amperes being the voltage of the machine times the full load current, times 1.73 if three-phase, or times 2 if two-phase. A general rule is that machines up to 1000 volts should show somewhere near a megohm. The Institute rules say further: "It should be noted that the insulation resistance of machinery is of doubtful significance by comparison with the dielectric strength. The insulation resistance is subject to wide variation with temperature, humidity and cleanliness of the parts. When the insulation resistance falls below that corresponding to the foregoing rule, it can, in most cases of good design and where no defect exists, be brought up to the required standard by cleaning and drying out the machine. The insulation resistance test may therefore afford a useful indication as to whether the machine is in suitable condition for the application of the dielectric test.

Connecting Induction Motors by Dudley

There is a considerable difference of opinion as to the value of these two tests. In my opinion the A. D. E. E. dielectric test is too severe to apply to *old* machines, as complete breakdown of the winding may result. I believe 1000 volts on machines rated 600 volts and below, and 3000 volts on machines rated at 2200 volts, is usually sufficient. The principal use of the "Megger" test should be, not to determine if the insulation value is poor, but rather to show its condition in regard to moisture and cleanliness.

The next consideration in connection with repairs is the cause and prevention of trouble.

A large percentage of electrical troubles can be traced to the condition under which the apparatus operates; low voltage, dampness, acid fumes, dust, overloading, lack of attention, etc.

Use Suitable Equipment

The prevention of trouble should begin with selection of the proper type of equipment suitable to the conditions under which it is to operate. A motor, for instance, to be used in allocation subject to extreme humidity, acid fumes or other unusual conditions should be especially treated for this service. Also where there is any doubt as to the loading of any electrical equipment, load tests should be made to determine whether it is of the proper rating for the job.

Assuming that the selection and application of the equipment is satisfactory for the purpose, then, it is necessary through a systematic plan of inspection and repair to maintain the equipment in the best possible condition. This plan should provide for the checking of the air gap in motors to determine the condition of the bearings; the cleaning and occasional painting of the winding, lubrication, the inspection and repair of contacts in control equipment, and the inspection and adjustment of protective relays.

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Haberland Mfg. Co.
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The Old Man Says:—

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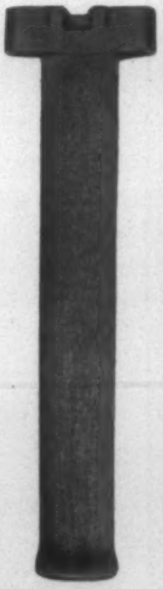
LET'S WEAR THE OLD ONES OUT FIRST."

Patent Pending



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Let Lock Fix 'Em

We will make them stronger than they were when new—*at one-third the cost of replacement.*

We are the only factory below the Mason & Dixon line equipped to make all kinds of Wood Cones and Heavy Spindle Twister Bobbins.

Special

We have 20,000 7-inch speeders, refinished to standard size, guaranteed to pass your 3-point gauge for Whitin Frames. Ask for sample and price.

J. E. LOCK & SON, Inc.
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Let Lock Fix 'Em

We will make them stronger than they were when new—*at one-third the cost of replacement.*

We are the only factory below the Mason & Dixon line equipped to make all kinds of Wood Cones and Heavy Spindle Twister Bobbins.

Special

We have 20,000 7-inch speeders, refinished to standard size, guaranteed to pass your 3-point gauge for Whitin Frames. Ask for sample and price.

J. E. LOCK & SON, Inc.
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Scientific Achievements of the SONNEBORN Research Laboratories

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Sonolene CC
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Effective and distinctive penetrants, wetting out and dyeing assistants - - - all of them!

And the most widely used because of their positive result-producing and cost-reducing effects.

Each possesses the highest degree of solubility, strictly neutral and uniformly superior.

Our technical laboratories and field experts are at your disposal. Make your problems known to us. It involves no obligation on your part!

L. SONNEBORN SONS, Inc.
NEW YORK
Manufacturing Chemists for the Textile Industry
Sales Offices and Warehouses in principal Textile Centers

(AMALIE PRODUCTS)

PERSONAL NEWS

H. B. Allen is now superintendent of the West Knitting Corp., Wadesboro, N. C.

A. C. McConnell is now secretary of the Hampshire Spinning Company, Clover, S. C.

M. R. Nichols is now superintendent of the Rayon Products Company, Union, S. C.

D. C. Fisher has become superintendent of the Chilhowee Mills, Athens, Tenn.

C. H. Hill has become superintendent of the Richmond Hosiery Mills, branch plant at Graysville, Tenn.

W. H. Shamford has succeeded James Wright as superintendent of the Rockwood Mills, Rockwood, Tenn.

G. W. Stouffer is now superintendent of the Wellwood Silk Mills, Sparta, Tenn.

L. D. Leister, of Poe Manufacturing Company, Greenville, S. C., is now overseer of weaving at Saratoga-Victory Mills, Guntersville, Ala.

J. L. Sweet has resigned as card grinder at the Hartsville Cotton Mills, Hartsville, S. C., to accept a position with the Kershaw Cotton Mills, Kershaw, S. C.

C. F. McDade has accepted the position of overseer of weaving at the Adams Cotton Mills, San Antonio, Texas.

D. L. Tate has been promoted from overseer night weaving at the Alamance Novelty Mills, Burlington, N. C., to day overseer at the Burlington Mill, Inc., of the same place.

Thos. T. Campbell, who has been instructor in the Chester High School textile department has accepted a position as assistant secretary of the Aragon-Baldwin Mills, Chester, S. C.

C. V. Singletary, of Rockingham, N. C., is now card grinder at the Hartsville Cotton Mills, Hartsville, S. C.

Andy J. Tant has been promoted to overseer weaving at the Issaqueena Mills, Central, S. C.

J. E. Caldwell has resigned as overseer weaving at the Issqueena Mills, Central, S. C., to accept a position at the New England-Southern Mills, Pelzer, S. C.

J. E. Ladford has become overseer cloth room at the Issaqueena Mills, Central, S. C.

J. M. McKelvey and J. L. Reynolds of Stanley, N. C., have invented a card index for loom dobby, which, it is claimed will effect the weaving process. It dispenses with all pattern chains on any loom and makes a much smaller and more compact machine, which will require much less house room. The inventors have gone to Worcester, Mass., to demonstrate the device to the Crompton & Knowles Loom Works.

W. J. Donaho

Spray, N. C.—W. J. Donaho, for fifteen years resident engineer of the Carolina Cotton and Woolen Mills Company, died last Wednesday night at Spray.

Mr. Donaho, who formerly lived in Charlotte, was known and esteemed by host of friends and relatives in that city, as a Shriner and business man.

Rayon Prices Reduced

Lower prices for viscose rayon have been announced by the DuPont Rayon Company and the Viscose Company. It is expected that similar reductions will be named by the other important producers.

The new price by DuPont shows $1.15 for first quality 150 denier yarn, and $1.10 for second quality. The company makes a corresponding reduction in its other yarns.

The Viscose reduction also places 150 denier at $1.15 with corersponding reductions on other sizes.

Increase in Cotton Consumption

Washington, D. C. — Cotton consumed during May totaled 668,229 bales of lint and 80,145 of linters compared with 631,719 of lint and 79,008 of linters in April this year and 577,384 of lint and 62,836 of linters in May last year, the Census Bureau announced.

Cotton on hand May 31 was held as follows:

In consuming establishments, 1,477,308 bales of lint and 231,589 of linters compared with 1,330,880 and 211,141 a year ago.

In public storage and at compresses 1,847,688 bales of lint and 78,488 of linters compared with 2,258,763 and 59,339 a year ago.

Imports during May totaled 42,486 bales compared with 19,842 in May last year.

Exports during May totaled 313,003 bales of lint and 15,069 of linters compared with 578,403 of lint and 12,942 of linters in May last year.

Cotton spindles active during May numbered 30,910,282 compared with 28,948,144 in May last year.

New Acetate Rayon Yarn

The United States Industrial Chemical Co., a subsidiary of the United States Industrial Alcohol Co., announced that it had perfected a new cellulose acetate process for the manufacture of both rayon and motion picture films.

The new process is said to be much less expensive than any now in existence. It is understoow that the company plans to grant licenses for the use of this new process to rayon companies. It was also reported that the company was considering entering the rayon manufacturing field itself. Further details will be found on the chemical market page of The Journal of Commerce.

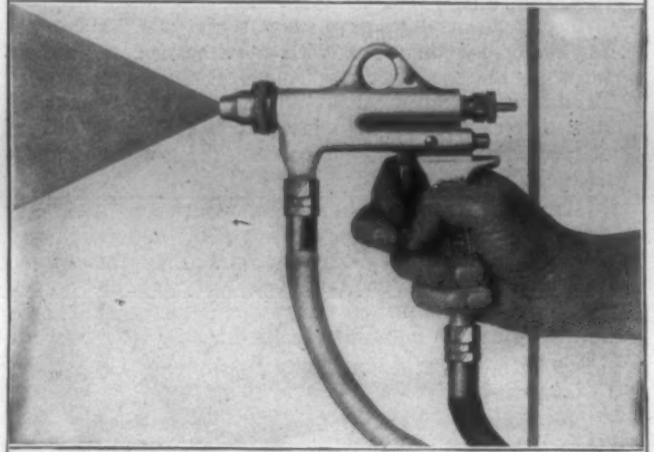
Cotton for Parachute Fabric

Washington, D. C.—The parachute may present a new use for American cotton, an investigation of its possible increased employment in the aviation industry reveals, the Department of Commerce made known recently.

A survey of the aeronautics field by the New Uses (cotton) Section of the Textile Division in line with the department's efforts to discover new uses for cotton textiles has thus far indicated that the parachute of cotton offers the chief possibility.

Cotton engine covers also promise to afford another outlet for small quantities of cotton, according to the survey. Another possibility under consideration is non-combustible linings and upholstery for the new cabin type planes. An additional possible use is for airport markers.

ECLIPSE
G-3 Spray Gun
wins in competitive tests



THE place to test the performance of any gun is on the proving ground. For painting operations the proving ground should be your plant for up-keep painting, your products for finishing. Here Eclipse Spray Painting Equipment will quickly and surely demonstrate its superiority over other painting methods.

Eclipse Spray Painting Equipment enjoys a 21-year record of success in competitive painting tests. Ask us for the facts about Eclipse tests in circumstances similar to those applying in your case.

May we show you how Eclipse equipment produces faster, cleaner, more uniform covering and greater savings in time and materials? Use the coupon attached for your convenience.

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Power Problems Discussed by Master Mechanics

(Continued from Page 21)

procedure of inspection and repair, if properly carried out, would practically eliminate the first two causes. Low voltage may be the result of so many conditions that a remedy can hardly be suggested here. As low voltage is equivalent to overloading your motors, and the proper steps should be taken to correct this condition.

In conclusion, I want to suggest that another important factor in connection with maintenance and repair work is, that an adequate stock of replacement parts should be kept in stock at all times. The expense of such a stock is more than justified in the saving in loss of production due to the unnecessary delay when a breakdown occurs.

Mr. Mitchell: I should like to ask this question: Suppose we take a 25 horsepower 2300-volt motor and reconnect it for 550, can we develop 100 horsepower?

Mr. Hanks: Absolutely, yes, assuming the proper connection can be put on the motor, if there is not some limitation on the number of volts.

Mr. Mitchell: You really have enough iron there to take care of it?

Mr. Hanks: Yes. It does not change the flux density of the iron at all. Sometimes you can not hit the exact voltage you want; however, but maybe you will come close enough to it for actual purposes.

Question: That is, provided you stay on the same speed?

Mr. Hanks: Yes, assuming you stay on the same speed. If you change the speed you change the horsepower, of course.

Mr. Humbert: Some manufacturers are using paste on the ends of the windings now. How do you break it off when you want to take out one coil?

Mr. Hanks: Yes—cement compound. You have to chip it off.

Mr. Humbert: Don't you ruin the coil getting it off?

Mr. Hanks: It depends on the length of time it has been in service. I have seen it come off very easily.

Chairman: In practice, is it very often possible to replace an individual coil where you have a damaged coil? As a rule, don't those things occur after the motor has enough age that the insulation is very brittle?

Mr. Hanks: That is generally true. Of course, it can be done under certain circumstances, but, as I say, I do not like to recommend it. Ordinarily I do not advise it. Certainly in our position, where someone is paying us to do the job, I do not like to do it, because it may come back on us. If you are doing it yourselves you might take a chance.

Low Voltage

F. T. Jones, Master Mechanic, Victor-Monaghan Company, Greer Plant, Greer, S. C.: Is it damaging to motors, say, 2200-volt motors, to run very long with the voltage running around 1900 or something like that?

Mr. Hanks: That is just a little low. Most manufacturers guarantee motors to run all right ten per cent plus or minus. It depends upon what load you have on the motor.

Mr. Fox: At 1900 volts instead of 2200, if your motor is pretty well loaded, you are going to kick out

(Continued on Page 32)

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DAVID CLARK	*Managing Editor*
D. H. HILL, JR.	*Associate Editor*
JUNIUS M. SMITH	*Business Manager*

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McMahon Emerges From the Bushes

In a newspaper dispatch from South Carolina we note the following:

> Thomas F. McMahon, president of the United Textile Workers of America, was to be in Ware Shoals tonight, and address the gathering of workers there.

This means that Thomas F. McMahon, generally known as Thomas Failure McMahon by reason of his long record of failures, could not stand it any longer and has emerged from the bushes in which he has been hiding for several weeks.

Years ago we saw, a fairly well dressed man, going down the road accompanied by very a ragged child and when they came to a house the man hid in the bushes while the child, with a story that it had been taught, went to the house to beg food and money. When the child returned the man pocketed the proceeds of the trip and made some kind of a mark upon the fence, apparently for the guidance of other beggars who might come that way. As we watched them the child visited many homes and the man apparently found it a very profitable "racket."

That is just exactly the kind of game that Thomas F. McMahon, president of the United Textile Workers, has been playing in South Carolina cotton mills and from which he expects to profit very handsomely.

McMahon knew that if he or any of his Northern organizers, most of whom like McMahon were born in foreign countries, attempted to unionize the cotton mill operatives of South Carolina, they would be kicked out and they therefore employed as organizers a few men from Georgia and other Southern States and while these temporary organizers worked, McMahon and his gang have been hiding in the "bushes" directing their efforts and keeping a watchful eye upon the funds collected.

The "bushes" in the case of McMahon have been the best hotels in the South such as the Charlotte Hotel where he has lived in luxury while keeping quiet.

In some cases the Southern organizers have been allowed to secure members for the union without requiring an initiation fee, upon the theory that more money could be secured by "tolling" them in and getting them upon the "dues paying" list.

No matter whether the unions are organized by McMahon and the other foreign born parasites, or by "dummies" it is certain that most of the money paid in as initiation fees or dues by those who join will go into the hands of the McMahon crowd and that he and his gang will draw fat salaries and live at the best hotels upon money mulched from the weekly pay envelopes of cotton mill operatives.

Upon the theory that "when thieves fall out honest men learn the truth," we quote the following statement of Vera Bush, organizer of the National Textile Workers:

> Who is Thomas McMahon? You see a big belly and about ten minutes later you see Thomas McMahon. He sits around his office, smokes big cigars, drinks liquor, draws a fat salary and does not do much else.

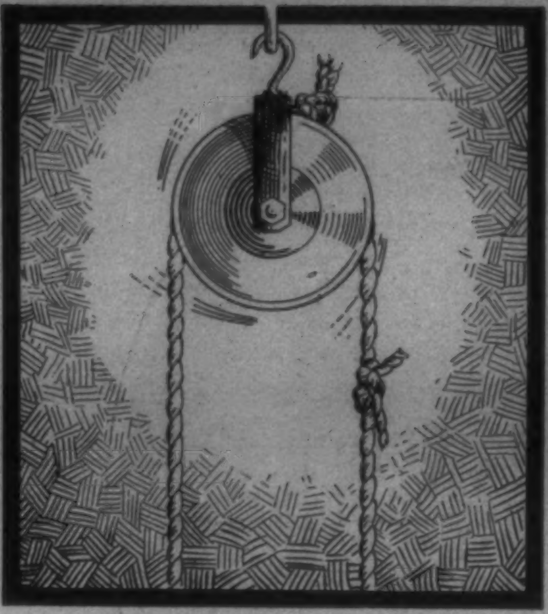
In fall of 1920, McMahon and his gang organized unions in Charlotte, Concord, Kannapolis and several small towns in this section and it is conservatively estimated that by May, 1921 they had got their hands upon more than $200,000 under the promise that during any strike every member of the union should draw $7 per week while idle.

When the strike occurred during May 1921, the union members could not get the money promised them and instead of being paid $7 per week were set out upon begging and borrowing expeditions. Money was collected from door to door in the business sections of Charlotte and other cities and accounts were run with small merchants in the mill sections upon the promise that such accounts would be paid when the "millions of relief funds" arrived. Most of the small merchants lost every dollar of the accounts and some of them were forced into bankruptcy.

McMahon stalled the strikers until August when they became so insistent and ugly that he left for the North with the promise of returning with large funds which his associates said would exceed one million dollars but the money never came.

When McMahon did return to Charlotte he had a bare $2,000 and finding that the angry

(Continued on Page 27)



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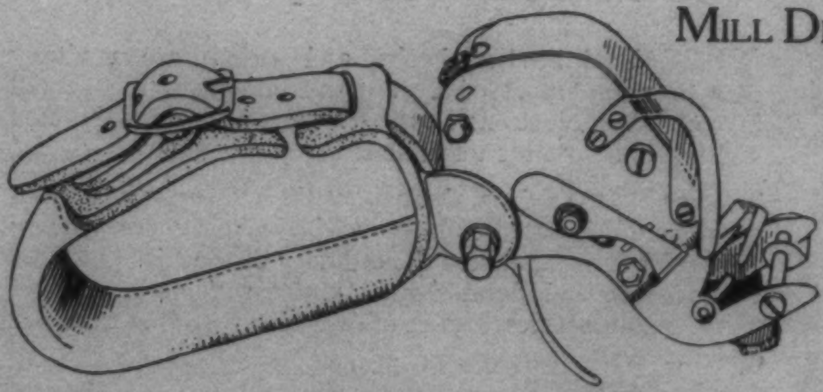

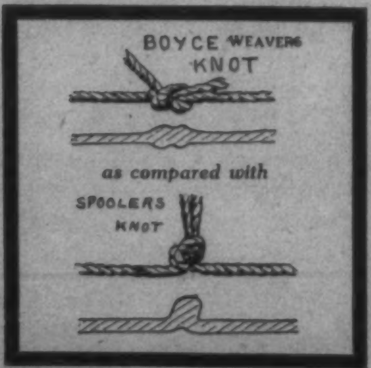

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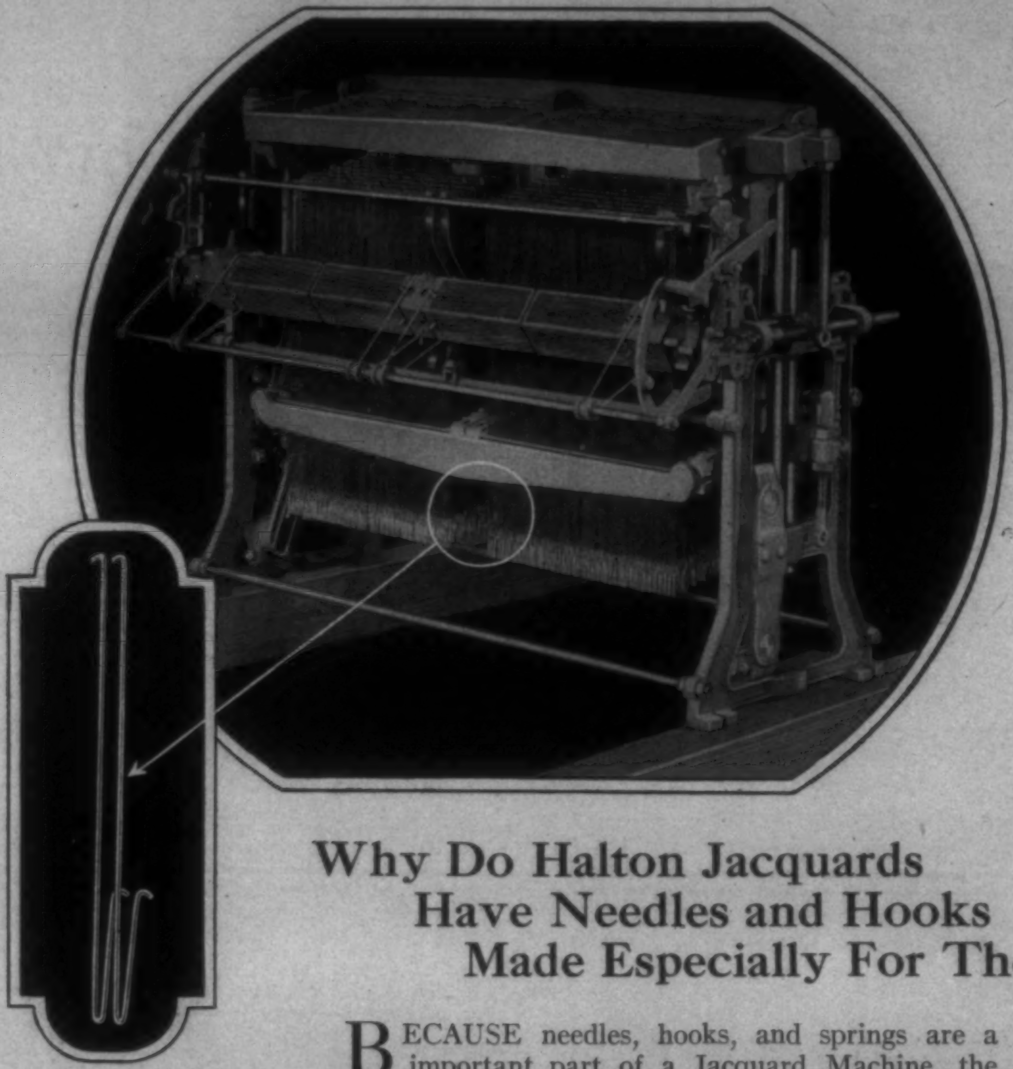

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union members could no longer be stalled McMahon slipped away and did not return to this section until recently.

The union members at China Grove finding that there was some money left in the local treasury tried to get it by law but were beaten and some of the McMahon gang went away with that.

The Charlotte - Concord - Kannapolis strike ended in September, 1921, without a single point having been gained by the strikers. It is conservatively estimated that the employees lost more than $2,000,000 in wages during the strike and that merchants and business men suffered to fully that extent through loss of business.

Some of the operatives who paid $200,000 in union initiation fees and dues prior to the strike are still wondering what became of that money.

After leaving Charlotte the McMahon gang pulled several strikes in Fall River, New Bedford and other sections of New England, all of which proved absolute failures except from the standpoint of collecting initiation fees and dues prior to the strikes.

If the operatives of any South Carolina mill insists upon forming a union, they should incorporate their organization under the laws of their State and should employ the best lawyer available to so draft their charter and by-laws that neither McMahon and his gang nor any embezzler or grafter can get his hands upon the funds paid in by those who join.

The charter should be so drawn that when funds are paid out of the treasury for any purpose, every check should be signed by two persons, one of whom should be a man whose reputation and integrity is beyond question.

It is often the case that in the passion of a labor dispute, a comparatively unknown man engineers his own election as treasurer and ultimately turns the funds over to the professional organizers or pockets them himself.

Men in the business world do not follow or place confidence in those who have failed in previous enterprises and there is an old saying that "a man should not be bitten twice by the same snake."

Thomas F. McMahon has a long record of failure in strikes and of unfilled promises. His gang have been notorious in their disregard of the rights of union members in the matter of the union funds.

McMahon, after hiding in the bushes for weeks, has come out into the open, and the mill operatives of the South can take a look at their self chosen leader and his record and connections which will not bear close scrutiny.

For years McMahon and his gang have kept the textile industry in New England in a turmoil and during his operation the number of active cotton spindles in that section have dropped from 20,000,000 to about 12,000,000 and thousands of former mill operatives have been thrown out of work.

According to McMahon's own statement as made during a recent New England strike, the mill operatives of that section are receiving less wages in proportion to the cost of living than those in the South.

If that be the case what have the mill operatives secured as the result of paying union dues for ten to twenty years and what can Southern operatives expect to gain from joining the McMahon organization?

These are troublesome times in cotton manufacturing and very few cotton mills can today operate except at a loss.

When mill managers face such a situation, the mill employes should not disrupt a long period of friendly co-operation and add to the burden of the mill by demanding unionization.

It is like being a friend to a man when he walks in health and prosperity and then jumping upon him when he sinks to the ground in a period of sickness.

The Place for Hysteria

When at the beginning of the Loray Mill strike in Gastonia, the strikers began to interfere with those desiring to continue at work and beat many of them. The Raleigh News & Observer went into hysterics because Gov. Gardner sent troops to protect the workers.

When, at a later date, a small shack, used by the strikers was destroyed without injury or violence to anyone, the News & Observer again was seized with hysterics and heaped abuse upon Gastonia for a deed which was undoubtedly performed by the strikers themselves.

When, however, the communists imported thugs and gunmen from the North and without provocation or the slightest justification killed Chief Aderholt who had been summoned to the "camp" to quell a disturbance among the union members the News & Observer has as the heading for their leading editorial "No Place for Hysteria."

Had a union leader been killed even while beating a citizen of North Carolina who desired to enter a mill, in order to work and earn his living, we can imagine that the News & Observer would have found a "place for hysteria," but when a fine citizen, Chief Aderholt is killed by imported thugs there is "no place for hysteria."

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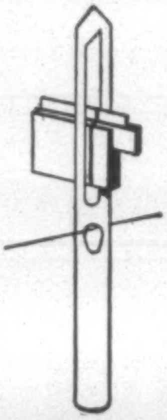

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MILL NEWS ITEMS

Burlington, N. C.—The Sir Walter Hosiery Mills have been incorporated by R. K. Moore, N. B. and G. D. Moore.

Suffolk, Va.—The Bell Hosiery Mills have increased capital stock from $140,000 to $300,000.

Asheboro, N. C.—The Cetwick Silk Mills are to install additional machinery.

Hickory, N. C.—The Magnolia Knitting Company has been incorporated by W. J. Shuford, Walker Lylerly and B. A. McDaris.

West, Texas.—The Brazos Valley Cotton Mills are repacing 44 looms with new ones.

Itasca, Texas.—The Itasca Cotton Manufacturing Company is installing forty 72-inch automatic bobbin changing looms to replace a similar number of old looms.

Great Falls, S. C.—The new unit of the Republic Cotton Mills, which is to have 16,000 spindles, will be equipped by the Whitin Machine Works.

Narrows, Va.—The Cavalier Hosiery Mills have purchased the building formerly occupied by the Narrows Extracts Works and will remodel for a hosiery mill.

Mobile, La. — The Industrial Committee Chamber of Commerce, Mark Lyons, chairman, is negotiating with Pennsylvania mill men for the establishment of a silk plant here.

Chattanooga, Tenn.—It is understood that the Everwear Hosiery Mills, Milwaukee, Wis., is to establish a branch plant and distribution warehouse in this city.

Rockmart, Ga.—Contracts for preparatory equipment, 50,000 spindles and accompanying equipment for the new plant here of the Goodyear Tire & Rubber Company, have been let to the Whitin Machine Works.

Crawford, Ga.—The Crawford Cotton Mills are moving their cloth room in order to make room for 50 more new 42-inch Model E Draper looms ,which are expected in the early part of June. They are also adding six more cards and other equipment to take care of the production. Robert & Co., Atlanta, Ga., are the engineers.

Raleigh, N. C.—E. E. Edgerton, of Raleigh, is in New York City in an effort to interest Northern manufacturers in the operation of the Raleigh Cotton Mill, which has been closed down for a long time. He represents the Raleigh Chamber of Commerce.

Kings Mountain, N. C.—The Dilling Cotton Mills of Kings Mountain has purchased new pickers and upon the arrival of same the mill will be closed down for several days so that these pickers can be installed. The work on the new addition to the silk department of the Dilling Cotton Mills is progressing so rapidly that it will soon be ready for the installation of the machinery.

MILL NEWS ITEMS

Elizabethton, Tenn.—The American Glanzstoff Corporation has awarded contract to the Hughes-Foulkrod Company, Philadelphia, Pa., for constructing a second unit to its big rayon mill at Bemberg, near Elizabethton and Johnson City, which will double the capacity of the existing plant and cost about $7,000,000. Contract for 2,300 tons of steel has been awarded to the McClintic-Marshall Company, Pittsburgh, Pa. The Lockwood Greene Engineers, Inc., New York, engineers for the first unit, are also handling engineering details of this unit.

Durham, N. C.—The Durham Hosiery Mills, in effecting its plans for reorganization of the company, will dissolve the charter of the North State Hosiery Mills and it will become a unit in the Durham chain. The Tar Heel Mill and the John O'Daniel Mills have been eliminated from the Durham holdings and returned to their stockholders.

Eight of the first allotment of 14 full fashioned machines have been installed and the remainder are to be installed within a short time. In addition 16 other machines are to be received within the next year.

Swannanoa, N. C.—Contracts for the erection of forty-two new houses and nineteen garages for the Beacon Blanket Mill's employees at Swannanoa, near Asheville, N. C., has been let to the Black Mountain Lumber Company, of Black Mountain, N. C., according to offcial announcement.

The houses are to be of wood and brick and to consist of three rooms duplex, four rooms and five rooms with living facilities for fifty-two families. The garages will accommodate one, two, three and four cars. These homes are a part of a general building and expansion program under way at the plant.

The new addition to the mill, being built by the Beacon Manufacturing Company's construction department, is near completion and the company will soon start work on a three-story cotton storehouse near the mill. Approximately $100,000 is being expended in this program. New machinery is being installed in the new addition.

Charles O. Owens, treasurer, and Charles O. Dexter, secretary fo the company, of New Bedford, Mass., and Knight C. Richmond, architect and engineer of the mill, from Providence, R. I., are at the plant consulting with Frank E. Barker, construction engineer.

Union, S. C.—Beginning the first week in July and in some cases extending one week monthly for four months, curtailment of production will be undertaken by all textile mills here, officials have announced. Dull market conditions and general opinion among Southern mill men that curtailment is a desirable remedy for current textile difficulties are reported the causes of this decision.

Announcements state that curtailment for a week in July will be universal in mills here. One group of mills employing approximately 1,000 operatives further announces that it will close one week a month for four months. Another with 2,000 operatives announces that its curtailment will amount to one week monthly until further notice.

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MILL NEWS ITEMS

Autun, S. C.—As a part of the improvement program of the La France Industries, of La France, formerly the Pendleton Manufacturing Company, of Autun, a complete new water supply system is being constructed, having a capacity of nearly one million gallons daily. This construction was necessary by the enlargement of the dye plant. Seventeen additional homes are now being erected for the employees.

Dallas, Texas—A group of interested persons forming a reorganization group put in the only bid for the C. R. Miller Manufacturing Company, whose three mills located at Dallas, McKinney, and Waco, Tex., were taken over by P. L. Thornton, receiver, six weeks ago.

Names of these forming the reorganization group were withheld. Mr. Thornton and A. Culberson, vice-president of the firm, have just returned from New York City, where they went to begin work toward building up a new organization pending announcement of future plans for the firm. Officials of the three mills are continuing to operate and fill orders, although production is somewhat curtailed.

Opelika, Ala.—General contract has been awarded by the Pepperell Manufacturing Company to the Batson-Cook Company, West Point, Ga., to build a unit here for the accommodation of 20,000 spindles and 500 looms. The contract also covers the construction of 60 operatives' dwellings in the new mill village, for which the company is making plans. The new unit will occupy a site immediately to the east of the present unit and will manufacture print cloths to be finished for the present at Lewiston, Me. The existing mill produces drills, twills, jeans, brown muslins, coarse sheeting and sateens.

Southern Textile Association Program

(Continued from Page 19)

Awarding of prizes to winners in golf tournament and prizes for other forms of entertainment.

Saturday, July 6, 10 A. M.

Address—W. M. McLaurine, Sec. and Treas., American Cotton Manufacturers' Association, Charlotte, N. C.

Business Meeting—Secretary's Report; Report from Special Committees; Report from Code of Ethics Committee; Election of Officers; Presentation of Emblems and Medals.

Arkwrights—Arkwright emblems will be presented to those whose tests have been approved by the Research Committee since our last annual meeting. These emblems will be presented by F. Gordon Cobb, Pres., The Arkwrights, Inc.

Service Medal—This medal is given by S. B. Alexander, Southern Agent, Crompton & Knowles Loom Works, Charlotte, N. C., to the member of the Association who has done the most for the advancement of the industry.

President's Medal—Given annually to the retiring President.

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Power Problems Discussed by Master Mechanics

(Continued from Page 24)

your automatic features like that, because as the voltage goes down the amperage goes up. The amperage must go up to maintain that power. If that amperage is too high, that is what burns your motors out. Your automatic feature ought to cut it out. But you know how it is; they set them up and up and up until the automatic feature is pretty nearly gone. But that is the thing you have to watch. The motor manufacturers guarantee ten per cent. In other words, they guarantee a 2200-volt motor at 2000 volts. The difference between 1900 and 2000 volts is very little. Brother Horning, you would not feel we had abused your motor if we ran it for a minute or two at 1900 volts, would you?

MR. HORNING: Most motors have a safety factor built in to prevent overheating. That gives an allowance of about 15 per cent.

MR. HANKS: That is the final answer, I think. So long as they do not reach an excessive temperature it is all right.

MR. FOX: Mr. Hanks has covered the subject very well, I think—so well, in fact, that I think he is hiding something from us.

MR. HANKS: Explain yourself, Mr. Fox.

MR. FOX: About this question of voltage. Suppose you say the voltage runs from 550 to 500. The motor manufacturer gives you, on 550, 10 per cent leeway. In other words, the motor will run on 500 volts. Mr. Horning also said there is an allowance of 15 per cent in there. Let's hear from some of you now on high voltage and low voltage.

CHAIRMAN: Mr. Hanks, what is your opinion?

MR. HANKS: As I said, my final answer is the heating of the motor, whether the voltage is too high or too low. Sometimes you are overloaded to begin with. Every mechanic should have a good thermometer. Sometimes you think your motor is running hot when it is not. They are guaranteed to run 40 degrees C. above room temperature.

MR. KINCAID: Our voltage was running in a transformer around 540, sometimes 550. The Southern Power Company changed our voltage to 575, and since then we have gotten a lot better service out of these particular motors. The motors were running, instead of 40 degrees above room temperature, about 55. The G. E. men were there and noticed it. In fact, we watched the thermometers ourselves. We had a little trouble, not much.

CHAIRMAN: Is it your conclusion that it is better to operate your motors at overvoltage rather than under?

MR. KINCAID: Yes.

CHAIRMAN: In your case you operate at over voltage because you did not have harness enough to pull your power, is that so?

Motor Temperature

MR. KINCAID: The temperature of the motors was a good deal lower when we raised the voltage. I am not advertising G. E.; we have Westinghouse there, too, that has given us awfully good service. We are getting good service from both.

CHAIRMAN: I was going to ask you that question, Mr. Hanks.

MR. HANKS: I hate to give a definite answer on that, but probably they would run hotter at low load and

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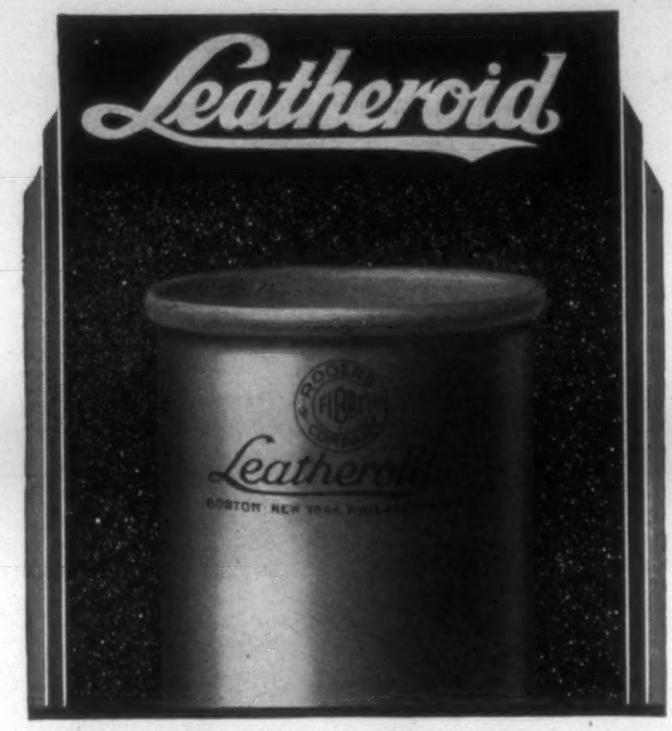

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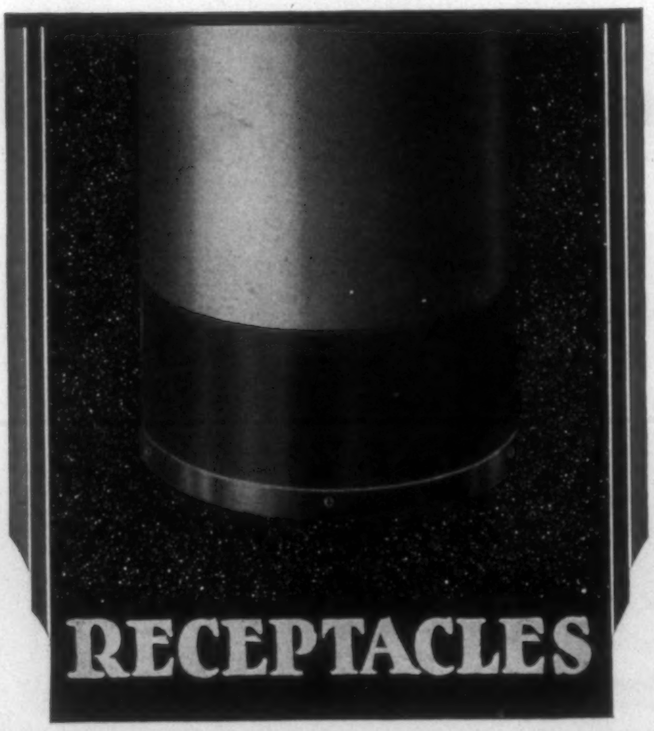

cooler at full load or over. The speed, I guess, would pick up some.

MR. HUMBERT: I quite agree with Mr. Hanks and Mr. Kincaid on the higher voltage. We have a rather exaggerated condition on some of the newer power lines. I have known it to go up to 650. As long as it is 550, 575, or 600, though, we are fairly safe. I have known it to drop to 525.

Question: Where the voltage drops from 550 to 500 or goes up to 600, what is the difference in consumption of power?

MR. HANK:: The consumption would be higher at low voltage, because the motor heats more and there would be more loss, consequently you have to put more power in it.

MR. FOX: I am going to jump in there. You are not going to use the same power. You are talking about amperes, my friend. You buy kilowatt hours.

MR. HUMBERT: I should like to ask Mr. Hanks if with increased voltage the copper loss would not go down as the iron loss went up?

MR. HANKS: The copper loss would go down somewhat, probably. It is an offsetting factor.

Allow 10% for Variation

M. E. LAKE, Duke Power Company, Charlotte, N. C.: I came in since this discussion started and so did not hear all of it. and I wonder what particular motor they are talking about when they say a motor operates at 550 or 560 or 575. It is common practice in textile mills. I think, to operate the motor from a feed circuit which is led out so you get a five per cent drop. In other words, the motor at the end of the switch board gets five per cent lower than the motor next the switch board. You are going to get some drop. and it is considered that five per cent is a pretty good figure. If these feeder circuits are led out in ample size, that condition will be cared for. If, however, later additional motors are installed without additional copper, you will have a variation. I think the manufacturers have recognized that by putting in their motors 10 per cent allowance for difference in voltage.

G. W. Misenheimer, Master Mechanic, Chadwick-Hoskins Mill, Charlotte, N. C.: I want to ask a question in regard to the voltage. The lower the voltage, the higher the amperage; the higher the voltage, the less the amperage. What do we pay for, voltage or amperage?

MR. HANKS: Both.

MR. MISENHEIMER: If our voltage drops from 2200 on down to 2100 or 2000, is there any difference?

MR. FOX: It is so small you can not measure the difference.

MR. HANKS: It is a combination of the two.

MR. FOX: Mr. Lake, can you give them a description of the kilowatt so they would know it when they meet it on the street?

What is a Kilowatt?

MR. LAKE: The only way I can give any conception of what volts and amperes mean is by going back to the water circuit. Volts are analogous to pounds pressure in the water system. Suppose you say you have 60 pounds pressure: that corresponds to the voltage. But if you have pressure and no movement, you have no power. Amperage corresponds to the amount of water that flows through the pipe, so amperage compares to gallons. So if you take the amount of water flowing through the pipe and the number of pounds pressure on it, you have the power. There is a certain loss due to molecular friction in the pipe, which corresponds to ohms. It takes those two factors, volts and amperes, to

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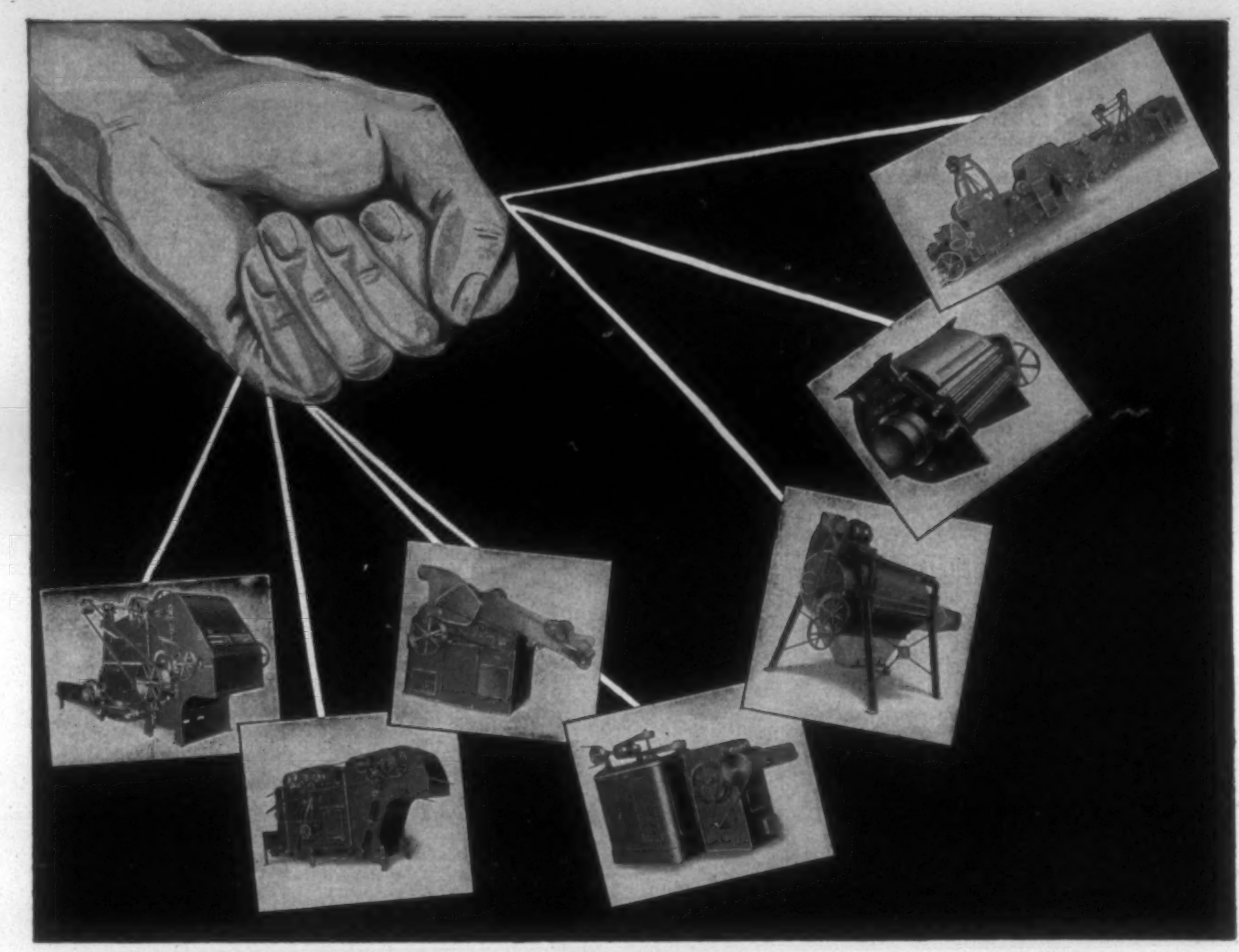

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Power Problems Discussed by Master Mechanics

(Continued from Page 32)

produce power. Your meter does not register volts or amperes but registers a product of those two, which is energy. That is what it really registers. When we come to alternating current there is another factor brought in. If your volts and amperes are operating directly together you have a 100 per cent power factor. Your energy is the product of your voltage times your amperes times another factor, which is whether it is a two-phase circuit or some other kind of circuit. That gives you a result which is known as a watt. Divide that by 1000, and you get a kilowatt. The use of a kilowatt for one hour is a kilowatt-hour. Your volts and amperes, at 100 per cent power factor, are working together; at zero per cent power factor they are not working together, and the varying degrees come in between.

Chairman: Would you say it is worth while for a master mechanic to know what the power factor of his mill is?

Power Factor Important

Mr. Lake: I think it would be. I don't know that he can change it after he does know it, but there might be some things in a textile mill that will affect power factor. One thing you can do which will help to a greater extent than anything else. In other words, it is characteristic of the squirrel-cage motor, with its economical construction and low maintenance, to take somewhat from its power factor. At full load the average squirrel-cage motor will have a power factor of around 80 per cent. That is the average size, say 30 H.P. at full load. Now, if you buy a 40 H.P. and put it at a 20 H.P. load, you will probably get a power factor of 50 per cent. By keeping your motors reasonably well loaded you are doing the main thing you can do to keep your power factor up to the maximum. It is another story with small motors, say individual end drive motors, where it take full power to start the loom and only half that amount to drive it. Of what advantage, you ask, is good power factor to you or to the mill? Whenever you improve your power factor and get a corresponding amount of energy to that motor you have reduced the current. In other words, just take an arbitrary case. Let's say here is a motor operating at 60 per cent power factor, because it is not fully loaded, and it takes an ampere to get each H.P. to that motor. Well, load it up so that it takes only 0.8 per cent to get each H.P. to that motor. The motor will run better, because it is cooler. So there is some saving to you to operate at the best power factor that you can possibly operate.

Lower Voltage Means Lower Speed

Chas. A. Spencer, Plant Engineer, Union Bleachery, Greenville, S. C.: In our plant we have several hundred H.P. motors running on 2300 volts. At several different times our voltage has dropped to 1950 or 2000 volts. Does it cost our company anything more for electrical power or electrical energy running on low voltage than running on the proper voltage, which is 2300?

Mr. Fox: I answer that emphatically no.

Mr. Spencer: Well, if it does not cost anything more in electrical power, what is the reduction in speed?

Mr. Fox: For each reduction in voltage there is a reduction in speed.

Mr. Spencer: How many revolutions will that motor lose every minute?

Mr. Fox: For each ten per cent drop in voltage there is a one per cent drop in speed.

Mr. Spencer: Suppose that motor is running about 690 and drops to about 650; what has our plant lost in production by reason of that drop? I think we are paying more for electrical energy by the reduction of production in the plant.

Mr. Fox: By reduction of the product?

Mr. Spencer: Yes. Take your speedometer and put it on motors supposed to be running at 2300 volts and which are running at 1950 and see what you have lost.

Mr. Fox: Your idea is that the reduction of product is the loss?

Mr. Spencer: Yes.

Variation in Voltage

Mr. Fox: There is no question but that it is the duty of the power company to maintain the power. In the case of the Union Bleachery we have a station at the end of a line. Any material change in voltage would represent, of course, a certain percentage of loss in production. That is beyond question. The question is, how far can you drop votlage before you begin to notice your speed? We have a great many complaints from time to time about this matter of change in voltage resulting in change of speed. With a ten per cent change in voltage

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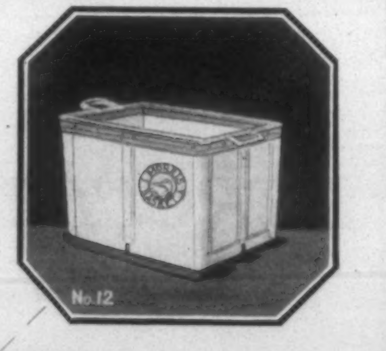

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there is about one per cent change in speed of production. Outside of the fact that you have lost that production, the power company's bill does not represent any change to you at all; because it is a question of the energy, as Mr. Lake pointed out, and not simply volts and amperes. You are right, sir (about the change in production brought about by change in speed), but the real difficulty is in determining what the loss in speed is. Some time ago we had some complaints from a mill in your State about seventy-five miles east of you; the mill, when running its looms at night, found there was a rapid increase in speed on the looms. But when we put on tycometers we could not locate the condition; the trouble disappeared. Now, I am not taking a shot at anybody, but that is what happened.

S. A. Anderson, Sales Engineer, Republic Flow Meters Company, Charlotte, N. C.: I came in here as a visitor, and this has all been very enlightening. There is a question I should like to ask. Do any of the mills use synchronous meters for power factor, and if not, why not? Or any other method of raising the power factor, such as condensers?

Mr. Fox: There is no advantage to the consumer in having a higher power factor; it makes no difference in his bill, and why should he do it? In Alabama, where it is necessary to maintain a certain power factor, it is necessary sometimes to put in synchronous meters. But the Duke Power Company does not require it, so why do it?

Mr. Horning: Mr. Lake implied, I believe, that in small motors the power factor is very, very bad. Generally speaking that is true, with the exception of small motors as applied to the textile industry. I believe all of the manufacturers recognize the fact that the power-factor problem had to be met, and they are designed so that I believe you will find the power factor right around 80 on even a very small motor. In a corresponding motor in a peanut roaster, etc., you will find the power factor around 47 or 48 or something like that.

Variation in Frequency

Chairman: When we started off with this question we were concerned with maintenance and repair, and it seems we have wandered right far afield. The thing that I am wondering about is just how variations in voltage, etc., affect the life of that motor and the maintenance of that motor. I should also like to know something about variations of frequency. There has been so much complaint about variations of voltage making a difference in operation, and what about variations in frequency? My understanding has always been that variations of frequency concerned speed more than any other condition. I notice occasionally in a mill that the switchboard has a frequency indicator on it, but nobody seems to pay much attention to it.

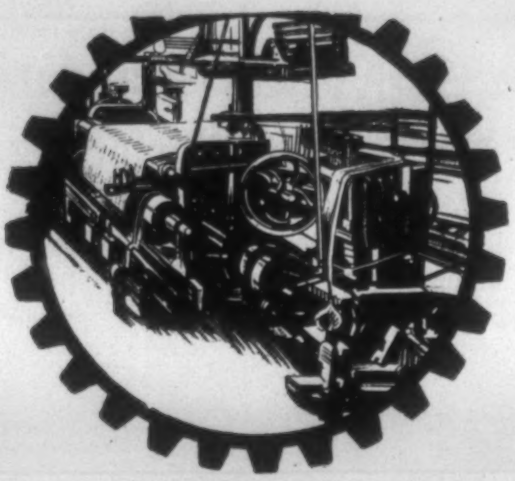
Mr. Jones: We have a frequency indicator, and we are on the end of a line about a mile and a quarter long from the substation, 2300 volts. I notice the variation in the frequency indicator when the voltage runs around 1900 volts.

Chairman: Do you notice a variation in speed?

Mr. Jones: That is the way I notice it, by the variation in frequency. You can tell it lowers the speed just a little bit by the frequency indicator.

Chairman: There is one other thing I should like to ask here. We talk about our motors, etc., but we do not think much about our lights. I know I have been jumped on sometimes for having to buy so many lamps. How do those variations in voltage affect the life of the lamps?

Mr. Fox: I don't know why everybody should be



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picking on me this morning. (Laughter.) The product of speed is more the direct ratio of frequency than anything else. Now, does the frequency on our system (that is the only system I can talk about) vary? In starting up the mill load in the morning it is difficult for the first two or three minutes to get the speed on the generators adjusted. You boys know that who have your own power plants. If that speed varies during the day there is somebody in our operating department who has to sit up on his hind legs and say why. Will you take exception if I say that with the exception of starting up and noon hour and night hour the cycle does not vary one per cent? I do not have to make that statement; I can bring you records, miles and miles of records, showing that. On our circuits in these stations there is a frequency meter which governs the entire system. In the old days, when we were running direct-current motors, speed was the product of amperes; but in the alternating current speed is the product of cycles. Now, in running by water power, the speed might change. But consider the Duke Power Company, or some other system of the same kind, with twelve or fourteen steam plants or water-power plants all hooked in together, just like a big gear, all hooked in together. You could not change the cycle on your end of the line to save your life. The cycle remains absolutely the same, because it is a big gear all hooked in, all the poles on the machine all running together. One can not change without all of them changing. So you see the difficulty of making a change in a cycle in a system like ours. The operating department has a terrific job to change the cycle after it has once been set, because it has to change twelve or fourteen plants. Your frequency meter is probably at fault. I might say that the reed meter, that vibrating reed, will get tired and will change; it will need adjusting once in a while. Many times I have gone into a plant and found 59 cycle when I knew we were exactly on 60. Let me tell you a secret. We have in our operating department a laboratory meter. It is so exact and so accurate that it has to go almost across six inches to make a difference of two cycles. That shows you the extent to which we go to keep this matter of frequency right on the dot. I want to plead guilty to the morning load and to the noon-hour stopping and starting and stopping at night; then for four or five minutes it is difficult to keep it right on the dot. If you have one of these vibrating reed meters it is better to plug it in occasionally than to keep it on all the time; its life will be longer.

Question: I should just like to ask Mr. Fox if you do not have to have a little excessive speed before the governor takes hold on your generator.

Mr. Fox: He knows just as well as I do that before you can have a change of anything you have to have that change. With the old fly wheel governor type on the engine unless the speed changed the governor did not change. The question is, how close will that adjustment be?

Mr. Thomas: I am just a visitor. We had trouble in our machine shop on a small motor; when we threw on a certain high power machine (we had a forging machine) it slowed the machinery down considerably. We changed to a high power motor on account of that, because it handicapped the men.

Mr. Fox: Bear in mind this description that Mr. Lake gave you of feeders going through the mill, a certain one to the card room, a certain one to the spinning room, etc. They are figured for a certain amount of load because of the amount of copper in them. We have had complaints from mills of change of speed at

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night time. When traced we found that a certain load in the mill had come off, that all the machinery was not running at night time that there was in the day time, and with that load coming off you had a change in voltage on your mill circuits which affected the speed in the mill. For instance, take a mill with 600 looms, say, 200 of them running on a certain line of goods. The boss is pushing those looms to get that goods off, and shuts down the 400 other looms. The feeder circuit is then taking care of those 200 looms, and you can not help but have a change in speed.

MR. LAKE: So far as frequency is concerned, if the frequency changes the speed is changed. If the frequency changes you have the goods on us, but for the frequency to go up or down all those generators on that system have to be changed. I have run into this condition several times, of a mill with a large number of looms in the weave room, and the drive is a group drive, with possibly two or three or four motors in that weave room. The motor, say, had 100 or 150 looms on it, all of those looms operating through the day, but at night that particular motor will carry, say, half the number of looms it does during the day. There is another factor coming in there, which is the factor of slip in your induction motor. If you take a six pole sixty cycle motor without any load on it at all it will practically run 1200 revolutions, which will take care of the slip in the motor. When you load it up to its full extent it will have a slip of about five per cent. So, leaving the voltage and frequency absolutely constant, you have a change in there of five per cent. So if you operate a motor with one hundred looms in the day time, which is the full load, and at night time operate only fifty looms, you can expect a change of about two per cent without any change in voltage or speed, simply because at one time you operate at the full load and at the other time operate at half load.

CHAIRMAN: I think it is about time to adjourn for lunch. We are going to have luncheon served upstairs, and we want to come right back to the meeting and begin at one-thirty. Be sure to come back promptly, so we can get through.

Afternoon Session

The meeting was called to order by Chairman Iler at 1:35.

CHAIRMAN: There is a paper to be read on the effect of high steam pressures on economics of power generation. Mr. Fox will introduce the author of this paper.

MR. FOX: The man who prepared this paper is sick in bed at home and has been for three days. He has been anxious to get here, but it is impossible for him to come. He is a designing engineer for the Duke Power Company. Now, I got a dummy to come and read the paper. He does not know a thing about steam engineering, so there is no use in asking him any questions. But he is going to read the paper that Mr. Nabow prepared. The gentleman who is going to read it is H. W. Oettinger, and the paper was written by D. Nabow.

Economic Trend of Steam Power Generation

The ancient art of steam power generation has taken on a new lease of life in the last six or seven years and has gone through a period or remarkable development. In 1913, the average steam plant used 4 pounds of coal for each K. W. hour of energy produced; and the largest, most modern, and most efficient central station built that year produced a K. W. hour on 1.70 pounds of coal.

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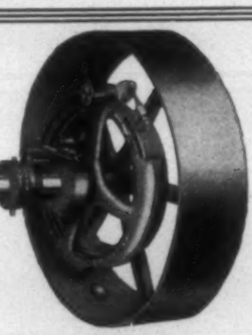

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The highest steam pressure was under 200 pounds and the highest steam temperature 500 degrees F. The next eight or nine years, which comprise the war period and the readjustment period following the war, witnessed but slight gradual improvement in maximum efficiency, the very best central station performance being 1.5 pounds of coal per K. W. hour in 1922. Since that year developments have been rapid. Steam pressures have increased to 1200 and even 1800 pounds, steam temperatures have gone up to 750 degrees F., and the best performance of the most efficient central steam station in operation today is claimed to be slightly under a pound of coal per K. W. hour.

Now let us see how these developments affected, or were affected by, the cost of power generation. Diagram No. 1 shows the trend of items entering into the cost of power production as reported to the Power Generation Committee of the A. I. E. E. for central stations 60,000 K. W. or larger, plotted against date of initial operation of the stations. Up to 1916 there was but slight increase in cost of power production, but from then to 1922, due to increased cost of construction, higher cost of coal, and higher freight rates, the cost of power production increased rapidly, until it was more than double the 1913 value.

Improvement in Equipment

The rapidly mounting costs spurred the power company executives and engineers to action; and in the next few years pressures, temperatures, and sizes of units jumped up by leaps and bounds; regenerative and reheating cycles were introduced to improve the efficiency of the steam cycle; air heaters and economizers reduced stack losses; pulverized fuel, improved stokers, and water-cooled walls improved combustion and permitted operation of boilers at higher ratings; motor-driven auxiliaries reduced stray losses; and the mechanical design of the turbines, condensers, and auxiliaries was improved, resulting in higher efficiencies.

The coal consumption began to dwindle rapidly at first and is still on the downward path. The total cost of power production started downward, but after a while the additional cost of the higher pressure equipment and of additional auxiliaries began to absorb the gains, and as a result we are finding ourselves facing this situation. We can still reduce the coal consumption per unit of energy produced, but unless our coal cost is very high or unless we can be sure to operate the station at a high load factor for the entire useful life of the station, we not only do not reduce but are very likely to increase the cost of generating power. A study of the item of "Capital Charges" as shown on Diagram No. 2 will emphasize this point.

In 1913, the item of "Capital Charges" was only 40 per cent of the total cost, and coal was 40 per cent. In 1928, while the coal cost was reduced to 27 per cent, the capital charge has mounted to 57 per cent and is at present by far the largest item in the cost of power generation. It would seem that in the last few years we have really been swapping dollars instead of making important economic gains. As engineers and operators of steam stations, who take pride in their work, we would like to regain every possible B. T. U. and to build and operate the most modern and most efficient stations. But we must keep in mind that if the increased efficiency does not result in reduction of cost of power production we have gained nothing except the doubtful distinction of being connected with an enterprise which is economically unsound and is therefore based on poor business and poor engineering.

The greatest problem in steam power generation today is the reduction of the item of "Capital Charges," the one item which doubles in value when your power output is cut in half.

Reducing Capital Charges

Now, before we attack this monster, which eats up all these nice fuel economies, let us study him and see if we can discover a weak spot. The capital charge item is made up of the following component parts:

1. Interest on investment.
2. Depreciation and obsolescence.
3. Taxes.

Can we expect any material reduction in tax rates during the next ten or fifteen years? Our past experience says No!

Can we expect a longer useful life of our equipment and thus reduce the obsolescence item? It is human nature to want to say yes!; we always believe that the plant we are building is the last word in mechanical perfection and efficiency, and that it should keep on operating forever. A dozen years later, however, we begin preparing reports advising the scrapping of the ancient junk and the installation of really modern equipment with all the latest improvements. The Duke Power Company has just discontinued the operation of two steam stations built in 1913. They have really been obsolete for four years. There is no reason to believe that the next ten or fifteen years will not bring still further developments, and so it is not safe to assume a lower rate for this item.

The rate of interest on investment depends on the method of financing and other factors which are outside the limit of this paper. However, the amounts of interest charges, obsolescence charges, and taxes are a direct function of the initial cost of installation; and therefore the only sure way of reducing the item of "Capital Charges" is to reduce the initial cost of the station.

Greater Output Means Lower Costs

The most effective way of reducing initial cost is to build stations with the greatest possible generating capacity, using units of as large a size as possible, considering the load condition of the system. The new Riverbend Steam Station of the Duke Power Company will have an initial installation of two 55,000 K. W. turbogenerators fed by four boilers, three of which can carry the total load. These boilers are equal to the largest yet built for high pressure service. Just visualize the same amount of power generated in small individual plants of, say, 2,000 K. W., each having two 1,000 K. W. units and three boilers. This would mean 55 separate power plants with 110 turbogenerators and condensers; 165 boilers with stokers or pulverized fuel systems; 55 coal and ash handling systems; 55 sets of station auxiliaries, such as pumps, fans, feed water heaters, piping systems, etc.; 55 power house buildings; and 55 condenser water intake, discharge, and possibly cooling systems. And now consider that the ultimate capacity of the Riverbend Steam Station will be four times as large.

Another effective way of reducing the capital charges is to critically challenge every dollar that goes into the cost of the station. This attitude will be of help whether you are investigating the feasibility of the reheating cycle for a new steam station or are checking up on a salesman's claim of getting 86 per cent efficiency on your 20-year-old boiler, if you buy his pulverizer.

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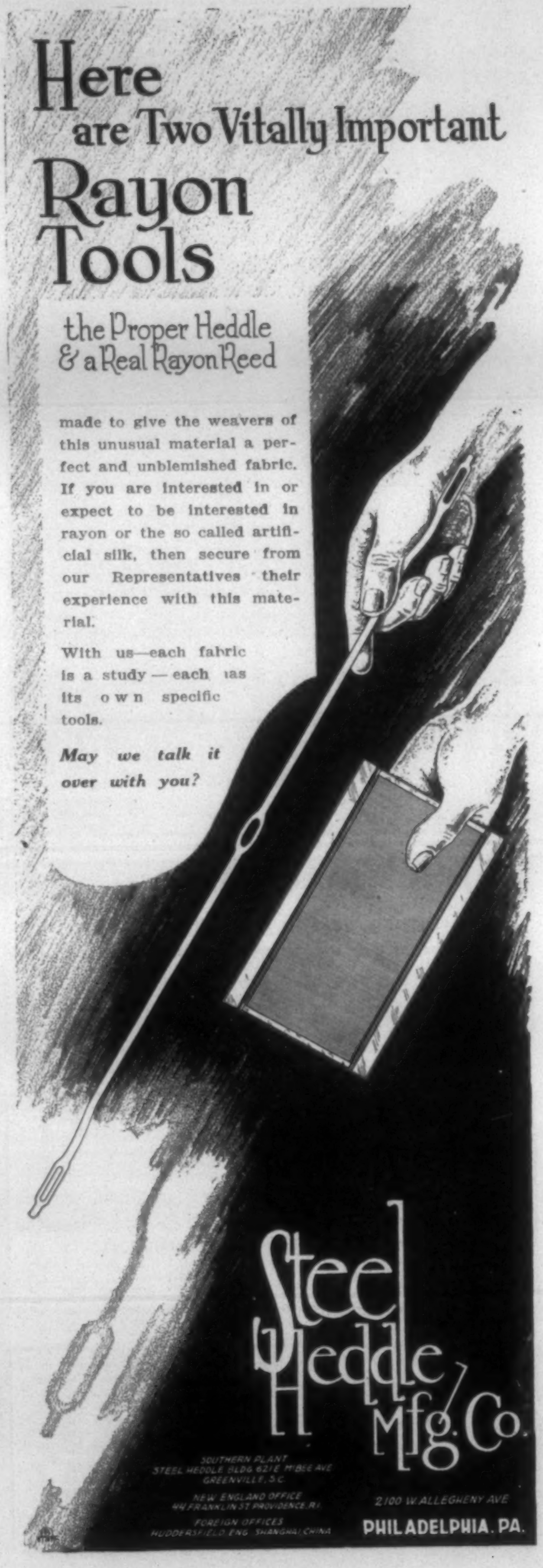

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method was used to determine the most economic steam pressure. Higher and still higher steam pressures were in the air. Several stations were in successful operation at 625 pounds. Other stations were considering 800 pounds. One station in New England and one in the Middle West were experimenting with 1,200 pounds pressure. Should we obey the impulse and join the procession? We decided to investigate. Complete studies and estimates were made considering 400, 625, and 1,200 pounds pressure at the turbine throttle. Complete plant layouts were made; heat balances computed; bids secured on all major equipment; and detailed estimates of quantities and costs of construction, maintenance, and operation were prepared for each of the pressures. The results are shown on Diagram II. It will be noted that while the coal bill could be reduced almost 10 per cent for the 1,200 pounds pressure, the additional cost of building the higher pressure stations more than absorbed the saving in the coal bill and the cost per K. W. hour output was lowest for the 400 pounds pressure. Since this pressure also involved the least initial cost, it was the one selected for the station.

Similar studies will be made for the future extensions; and if, at that time, steam pressures of 1,200 pounds, or 1,800 pounds, or 3,200 pounds, are selected, it will be only because they will produce a K. W. hour at the lowest cost.

CHAIRMAN: I am sure that was a very interesting paper to all of you, as it was to me. It was very enlightening to me, because I had been led to believe from what I had read that the higher the pressure the more desirable it was to build a station of that kind. This paper indicates that that is shown not to be true. The 400-pound station was shown to be the most desirable station.

Are there any questions anyone would like to ask the gentleman who has just read this paper?

Question: Is it the consensus of the paper that over 400 pounds the increased pressures are not justified?

CHAIRMAN: I gathered from it that, while the coal cost has been reduced, the capital charges have increased so much that the costs for the higher pressures, for construction and maintenance, more than absorb the saving in coal, and that the 1,200 pounds pressure is not justified; that is, starting out with the fixed factors of coal cost and load factor of 40 per cent.

Question: It costs more per K. W. hour, does it?

MR. OETTINGER: Yes.

CHAIRMAN: There are some 1,200-pound stations in operation, aren't there?

MR. OETTINGER: Yes, but probably the coal cost is lower than $4.50 and the load factor more than 40 per cent.

CHAIRMAN: Are there any other questions? If not, I think the only other business before us is the election of a chairman. It strikes us that it would be desirable to have a chairman elected from among the membership for a period of one year, thus rotating the office among the membership.

MR. FOX: Is it a rule of the Association that each division elect its own chairman?

MR. COBB: We want the body that is meeting to have its own leader, select a chairman from its own membership.

CHAIRMAN: Nominations are in order for a chairman for the ensuing year.

MR. COBB: Gentlemen, let's get a man in whom all of you have confidence and who will push this division.

(Continued on Page 44)

RAYON

(Continued from Page 8)

There is another important economic consideration. Since 1924 (the duties were introduced in 1925) the production has doubled, and in 1928 exceeded 50,000,000 pounds weight. In this same period the imports fell from 10,318,000 pounds in 1924 to 2,883,000 pounds in 1928. The increased development in that short time has more than equalled the production attained during the previous 18 years since the establishment of the industry in this country. As there is now a more or less definite ratio of workers to production this signifies that employment has doubled in a period of three years. One other phase should be mentioned. All the cotton and silk we use is imported, as is also at least 85 per cent of the wool. Of the cost of yarn production in silk 100 per cent, and in wool and cotton from 50 per cent to 60 per cent is represented in imported materials. By contrast with these yarns the bulk of rayn produced in this country is 100 per cent British, as approximately 95 per cent of the cost is expended in this country and the balance is chiefly accounted for in purchases from Canada of wood pulp.

FIRE BOILERS AT ENKA PLANT

Asheville, N. C.—A fire that will never go out as long as the plant continues in existence has been started under the great boilers which will turn the machinery at the $10,000,000 rayon factory of the American Enka Corporation, signifying its start of activities.

The fire, which is the first of a series of steps toward pacing the great rayon factory in full operation, was started by A. J. L. Moritz, vice-president of the American Enka Corporation and general manager of the plant, with a torch handled to him by J. W. Lubberhuizen, chief engineer of the Dutch Enka Corporation, who conceived the plans for and supervised installation of machinery in the American plant.

Officials of both the American and Dutch Enka plants attended the formal ceremony of kindling the fires that signifies that start of the opening of the plant.

HOSIERY PRODUCTION LARGE

Washington, D. C. — Hosiery production, all classes, during April was 642,176 dozen pairs greater than for the corresponding period in 1928, the figures being 5,113,999 dozen pairs and 4,471,823 dozen pairs, respectively, according to figures made public by the Department of Commerce showing production of 289 identical establishments representing 374 mills.

Production during April of 302 identical establishments represent 386 mills, totaled 5,285,483 dozen pairs compared with 5,330,886 dozen pairs for the preceding month. April production, by classes, in dozen pairs, follows:

Men's full-fashioned, 36,626; men's seamless, 1,77,338; women's full-fashioned, 1,772,253; women's seamless, 678,129; boys', misses' and children's, 741,297; infants', 266,639; athletic, 19,201.

Orders and stocks, in dozen pairs, during April follow: Net shipments, 5,089,216; stock on hand end of month, finished and in the gray, 11,357,235; orders booked, 5,601,892; cancellations, 189,146; unfilled orders end of month, 6,278,677.

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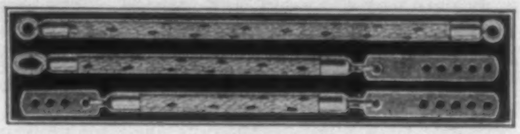

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Power Problems Discussed by Master Mechanics

(Continued from Page 42)

If it were not for the master mechanics the wheels would not go around, as I heard one gentleman say. There is no reason why the Master Mechanics' Division should not be one of the best in the whole association. If there is a man here whom you want for your chairman, let's elect him now; or if there is some man who was prevented from coming who you think would be a good man, let's elect him, and we will write him that he has been made chairman.

Chas. A. Spencer, Plant Engineer, Union Bleachery, Greenville, S. C., was nominated for the position of chairman. Nomination seconded. Chairman Iler then asked Mr. Fox to take the chair. Mr. Iler then nominated W. G. Young, Master Mechanic, Kendall Company, Inc., Paw Creek, N. C. Nomination seconded, and it was moved that the nominations be seconded, which motion was seconded and carried. The acting chairman called for a show of hands, and Mr. Young was elected. On motion of Mr. Iler, the election was made unanimous.

MR. COBB: We ought to have a vice-chairman for each division; that is very important, because sometimes (as today) the chairman is prevented from attending a meeting, and the vice-chairman could then preside in his stead.

Mr. Spencer, of the Union Bleachery, Greenville, was nominated as vice-chairman. There were no other nominations, and Mr. Spencer was unanimously elected.

Chairman Iler then resumed the chair.

CHAIRMAN: Before the division adjourns, if there is anything any member would like to bring up, now is a good time for it.

MR. FOX: Mr. Chairman, I am in the humor for a fight. (Chairman: As you usually are.) There was a matter broached at the last meeting, and I noticed in the halls and around everywhere the men were talking about it. That was the question of this low voltage and voltage dips. In the last meeting some questions were brought up about it. In the meeting of the engineers at Atlanta it was brought up. It is impossible for a power company of any kind doing business over a territory to avoid those instantaneous drops on voltage. It is sometimes due to the fact that a buzzard will get caught up in the wires. (Laughter.) Sometimes lightning strikes the wires. Sometimes an insulator spills over; it will not break but spills over, as we call it. It is only momentary. The release on your machine snaps over almost immediately. Our company and others have been trying to find something to take care of the situation. I believe that it is a matter that we could very well consider, for the reason that if we could cut out a number of the interruptions you will feel much better toward us. I have to admit that they have to take place, for reasons beyond our control. How best to take care of the situation is undecided. I should like to hear some discussion about that matter, because we are seriously concerned. The power company wants to have one hundred per cent service to the mills. I should like to hear some of you discuss that.

GEORGE STRATTON, Treasurer, Armature Winding Company, Charlotte, N. C.: Mr. Chairman, John Roddey, of the Duke Power Company, was to be here today and read this paper. For some reason he had to go out of town, and he asked me to be here and read this, with your permission.

CHAIRMAN: All right, sir.

Mr. Stratton read the following:

"When a lightning stroke occurs near a transmission line, it very often causes the power arc to flash over the insulators, which in turn acts like an overload both on the line and the power house machinery with the result that there is a sharp dip in the voltage. The dip in voltage will occur even though the line insulator does not fail. These dips in voltage, unless very slight, will cause the instantaneous low voltage trips to function and cause a shut-down of the motors. It has been found that a large percentage of these voltage dips are of very

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short duration; and if the switch did not trip the speed of the motor would, due to the momentum of the rotor and its connected machinery, remain nearly constant. A test made recently showed that the current could be taken completely off a loaded 200 horsepower motor for four seconds and then thrown back on without damage to the motor or sufficient change in the speed to affect the quality of the goods being manufactured.

"Not long ago some observations were made during a lightning storm at one sub-station. Two mills were fed from the same bus, one of the mills being equipped with a new switchboard having instantaneous low voltage releases on the switches and the other mill having old equipment with probably no low voltage trips on the switches; or if it had the low voltage trips, they were possibly out of commission. During a period of thirty minutes four sharp dips occurred in the voltage; and the meters showed that the mill with the new instantaneous low voltage trips shut down each time, while the other mill did not shut down nor was there any damage to its motors.

"It is therefore evident that a great many interruptions may be prevented by using, in conjunction with the instantaneous low voltage trips, a time delay relay set for from two to three seconds. While this time delay relay will cut down the number of interruptions, there will still be complete interruptions that can not be prevented; and it is essential that switches be opened when a complete shut-down occurs. It also is very necessary that the mechanic inspect and keep his automatic equipment in good condition in order to prevent failure of motors."

MR. LAKE: I know it was Mr. King's desire that this be discussed at this meeting. I looked into the matter from the standpoint of the cost of applying this device to your present equipment. I want to be sure you understand what the problem is, first. On the ordinary feeder panel or motor starting device there is a voltage coil which is nine times out of ten a low voltage release; that is, if the voltage should drop that meter will operate and take that motor off the line, and you have to go to the trouble to start up all over again, whereas if there were some device to hold that motor for a few seconds that interruption would not occur and the mill might never know there was a dip in the voltage except for a flicker of the lights. So this time delay under-voltage device is a development. The manufacturers have brought out three different types of devices. One of them is a device to be applied to a feeder oil switch in place of the usual low voltage trip. They devised a time delay low voltage device which is adjustable for from one to ten seconds. In other words, you can set that device so that if there is a complete interruption of the service for one second that switch will stay in and things in the mill go on as if there had been no interruption. Numerous power companies, in conjunction with the manufacturers, have found it is possible to take the voltage completely off any motor in any average textile mill for as long as three seconds and then put that back without any damage to the motor or to the goods. Now, the average voltage dip on any power system is in terms of a fraction of a second. In other words, if we can get some time delay device which will give us protection for a second or a second and a half, it will take care of most of the delays. Such a device to go on a feeder power switch will cost you $38. In other words, instead of that oil switch going out on complete interruption of voltage or dip in voltage, it will hang on for from one to ten seconds, according to how you set it. There is

(Continued on Page 49)

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COTTON GOODS

New York.—There were no developments of interest in the cotton goods situation during the week. Business continued rather light in most lines. Merchants here showed unusual interest in the curtailment to be made effective in July and are hopeful that it will be carried out on a very general scale.

Sales of print cloths, sheetings and other coarse yarn fabrics were few and represented only light yardages. Prices of spot and June deliveries of print cloths showed an easy tendency, which led buyers to bid for July-August-September deliveries at the spot prices. Mills were, however, firm, and declined to consider such offers. In sheetings a quiet condition existed with prices nominally unchanged. Twills on light sales brought the full market, and some drills sold.

Most centers described the carded broadcloth situation as continuing quiet, but there were reports of some rather fair sized business in certain directions. The interest was understood to have included sales of 100x60 at 10¾ cents for July-August, and some September. Several told of turning down bids at that price for these late deliveries. The 90x60 carded has continued to hold fairly firm at 10 cents; this style, judging by its recent behavior, seems to be better positioned than most of the other carded broadcloths.

Although quiet conditions and unchanged prices continued to prevail in the market in fine and fancy fabrics, merchants in several instances remarked on a certain improvement of feeling and ordering that on the whole was better than has been the case in recent weeks. Thus far this week orders, while small, have been a little more numerous, and, while they have consisted for the greater part of filling-in lots for quick delivery and finishing, there are current indications that more may be done shortly in strike-offs for the fall and spring seasons and in further ordering for later deliveries.

Cotton goods prices were quoted as follows:

Print cloths, 28-in., 64x60s	5⅝
Print cloths, 27-in., 64x60s	5⅝
Gray goods, 38½-in., 64x60s	7¾
Gray goods, 39-in., 68x72s	8¾
Gray goods, 39-in., 80x80s	10¾
Dress ginghams	12½-15
Brown sheetings	11½
Brown sheetings, 4-yard, 56x60s	9½
Brown sheetings, standard	12½
Tickings, 8-oz.	22 -23
Denims	17
Staple ginghams, 27-in.	11½

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YARN MARKET

Philadelphia, Pa.—The cotton yarn market showed some improvement last week. A moderate amount of business was put through. The bulk of the buying was done by weaving mills and there are indications that this trade should continue on a moderately large basis for the next several weeks. The general tone of the market was better. Prices were firmer and buyers less reluctant to pay spinners prices. The cotton market situation favored the spinner and was a help in keeping prices firmer. It is believed here that prices will show an increase if anything like active buying develops.

Knitting mills were slightly better buyers than during the previous week. Insulators took fair quantities. Yarn merchants reported an average to fair amount of inquiry with few orders for more than 25,000 pounds but with fairly frequent calls for lesser amounts. There were a few inquiries for filling-in lots from knitters and others, and top market prices were paid for June and early July deliveries. On later contracts of size spinners would shade fractionally, but the market generally showed a steady and unchanged condition. One or two inquiries for small lots of combed peeler yarns were noted. Other yarns were in only limited call.

In nearly all centers of distribution of cotton yarns better inquiry has been current, and while much of this business has been refused inasmuch as spinners were firmer in their prices and concessions not so readily to be had, some of it has been placed.

Southern Single Warps	
8s	32½
10s	33
12s	33½
14s	34
16s	35
20s	35½
24s	37
30s	40
40s	

Southern Single Skeins	
10s	32
12s	33
14s	34
16s	33½
20s	35½
22s	36½
24s	37
26s	38
30s	39½
40s	

Southern Two-ply Skeins	
4s-8s	32
10s	32½
12s	33
14s	34
16s	35
20s	36
24s	38
26s	39
30s	40
40s	47½
50s	56
60s	63

Southern Two-ply Warps	
8s	32½
10s	33½
12s	34½
14s	34½
16s	35
20s	36
24s	38½
30s	40
40s	48
40s ex.	48

Carpet and Upholstery Yarns in Skeins	
8s to 9s 3-4ply tinged tubes	28
8s 3-ply hard white warp twist	31
10s and 12s 3 and 4-ply hard white yarn tubes and skeins	32½
Same warps	33½

Southern Frame Spun Carded Yarn on Cones	
8s	31
10s	31
12s	31½
14s	32
16s	32½
18s	33
20s	34½
22s	35
24s	36
26s	37
30s	39½
40s	47

Southern Two-ply Combed Peeler	
8s	47
20s	49½
30s	56
38s	58
40s	58½
50s	62½
60s	70
70s	81
80s	91

Southern Two-ply Hard Twist Combed Peeler Weaving Yarns	
8s-12s	47
20s	49
30s	57
36s	58
38s	58½
40s	59
50s	63½
60s	72½
70s	83½
80s	96

Southern Combed Peeler Single Yarn on Cones	
10s	45½
12s	46
14s	46½
16s	47
20s	47½
22s	48
24s	49
26s	49½
28s	50
38s	56
40s	56
50s	62½
60s	71
70s	71

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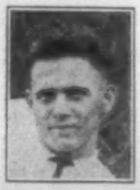

Paul Fields

Wt. 135 lbs.; height, 5½ ft., brown hair. Has worked in spinning and twister room. Anyone knowing his whereabouts, please notify his wife, Mrs. Myrtle Fields, Clover, S. C.

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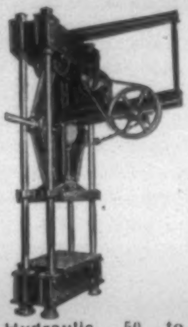

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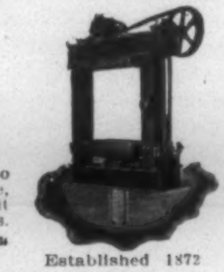

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Power Problems Discussed by Master Mechanics

(Continued from Page 45)

another device by which, if the voltage dips or goes completely off, the compensator will not dip from the line for one and a half seconds. The motor will go on as though nothing had ever happened. With the present low voltage release coil that motor would stop. That device, applied to starting compensators, will cost anywhere from $20 to $35, depending upon the make of the equipment.

So much for the feeder switches and for compensators. For magnetic switches there is a device on the market which will give a time delay for magnetic switches. That, I understand, will not take care of complete interruption of the service but will take care of dips or low voltage for less than a second and a half. That device costs about $11 additional, over and above the usual magnetic switch. As someone said, it is a very easy matter, if you are laying out a new mill, to put this time delay protection in all over the mill at very little additional cost. The real problem is how to put it in a mill built twenty or more years ago. In some cases the time delay devices put out by the manufacturers will fit; in other cases they will not fit; and the only solution is to replace those switches and compensators with new ones to which this device may be applied.

CHAIRMAN: Thank you, Mr. Lake; that is very interesting. I am sure that this information will be worth while to all of us present.

I think it is in order for me now, as acting in Mr. King's stead, to turn over the meeting to your new chairman. I shall ask Mr. Young to come forward.

Gentlemen, you all know this man. I wish to congratulate you upon your wisdom in electing him as your new chairman.

CHAIRMAN YOUNG: Gentlemen, the best I can do is to try to emulate my predecessor. I appreciate the confidence you have reposed in me, and I will strive to do the best I can to deserve it.

Mr. Cobb, do you know of any further business to be taken up?

MR. COBB: Not unless there is a question someone wants to ask or something some member wants to bring up.

CHAIRMAN YOUNG: Has anyone anything else to say?

MR. ILER: There is a question Mr. Gregg and I discussed several times, and that is how to get notices of these meetings to the master mechanics themselves. The notices were sent to the mills and often fail to reach the master mechanics. We tried then the plan of getting up a list of the master mechanics. We got quite a list of those and sent notices to the names on that list as well as to the mills. We thought the results justified the trouble involved in getting up that list. However, there are many changes, and it is hard to keep the list up to date. So it was suggested that every man here today take it upon himself, when he gets back home, to write Mr. Cobb about any man in his neighborhood who he finds did not get a notice of this meeting. So when you get back home, even if you do not know of anyone in your neighborhood who did not get an announcement, send Mr. Cobb your own name and address and the name of your mill and also the names of the master mechanics in other mills near you, and their addresses, so that he can make a complete record.

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If the applicant is a subscriber to the Southern Textile Bulletin and his subscription is paid up to the date of his joining the employment bureau the above fee is only $1.00.

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WANT position as superintendent. Experienced faithful, efficient, loyal. Best of references as to character and ability. No. 5624.

WANT position as overseer carding or spinning, or as second hand carding or spinning, in large mill. I. C. S. graduate. 10 years experience. Good references. No. 5625.

WANT position as overseer carding or spinning or both. Superintendent of a twine mill for three years, that has closed down. Always get good production at low cost. Former employers will recommend me. No. 5626.

WANT position as master mechanic. 21 years experience as master mechanic and electrician. Can change on short notice. No. 5627.

WANT position as overseer weaving and slashing. 15 years experience on plain and dobby weaves, some experience on jacquard weaves. Best references. No. 5628.

WANT position as superintendent of larger plant. Have been superintendent of a small yarn mill the past three years. Best of references. No. 5629

WANT position as warp-tying-in man. Eleven years experience on silks, and cotton, any kind of work or looms, including jacquards. Best references as to character and ability. No. 5630.

WANT position as overseer cloth room. Ten years experience—six years on fancies. High school education, and the very best of references. No. 5631.

WANT position as overseer carding or spinning. Experienced and well qualified. I. C. S. diploma on cotton carding and spinning. Good references. No. 5633.

WANT position as overseer cloth room. Age 40. 12 years experience. Best references as to character and efficiency. No. 5634.

WANT position as overseer cloth room. Experienced on plain and fancy cotton and rayon fabrics. Now employed. Six years successful record as overseer. No. 5635.

WANT position as overseer weaving. My hobby—topnotch production with low per cent seconds and cost. Experienced on all classes cotton, silk and rayon, except jacquard weaves. No. 5636.

WANT position as overseer weaving and designing. 15 years experience. Five years as designer. No. 5637.

WANT postion as master mechanic. Age 37. Experienced in cloth and cord mills. Will go anywhere. No. 5638.

WANT position as overseer weaving, plain or fancy, or as superintendent small plain mill. On present job three years. Good references. No. 5639.

WANT position as second hand in carding or as card grinder. Long experience and best references. No. 5640.

WANT position as overseer cloth room. Age 42, fifteen years experience on all grade of goods. Can run a room to perfection. No. 5641.

WANT position as overseer spinning. Age 32. Am night overseer of a mill that is stopping night work, and must have work. Best of references. No. 5642.

WANT position as superintendent. Well experienced in various lines, and all through the different processes of manufacturing in the different departments. Best of references. No. 5643.

WANT position as carder or spinner, but prefer spinning. 25 years experience on colored work. Strictly temperate and a church member. No. 5644.

WANT position as superintendent, or as carder or spinner or both. Experienced, efficient and reliable. Can come at once. No. 4645.

WANT position as overseer weaving; age 33. Experienced on most all plain weaves, also colored work and dobby work. No. 5646.

WANT position as overseer weaving, or wil consider position as second hand in large mill. 25 years as fixer, second hand and overseer on many plain and fancy weaves. No. 5647.

WANT position as overseer weaving. Experienced on drills, sheeting, ducks and colored work. Good habits and dependable. References. No. 5648.

WANT position as social service director. Three years with large Southern mill; had charge of houses, social and athletic activities. Best references from the superintendent. No. 5649.

WANT position as superintendent, or as overseer weaving in large mill. Experienced and well known. Best references. No. 5650..

WANT position as overseer spinning. Age 39, well experienced, efficient and reliable. No. 5651.

WANT position as overseer spinning or winding and twisting. Age 37. Can change on short notice. Would accept position as second hand in large mill. No. 5652.

WANT position as night superintendent, or as carder and spinner. 15 years experience. Complete I. C. S. course. Age 31. Go anywhere for better position. Best references. No. 5653.

WANT position as carder or spinner, or both. Experienced on carded and combed yarns. 12 years second hand, two years overseer. Now employed. No. 5654.

WANT position as overseer weaving, or weaving and slashing. Experienced on plain, fancy and Jacquards—cotton and rayon. Age 35, strictly temperate. No. 5655.

WANT position as overseer spinning, day or night. Six years second hand, three years overseer. Age 36. Good education. No trouble holding help. Best references. No. 5656.

WANT position as superintendent or as overseer carding or spinning—or both. 30 years experience on cotton and waste. Can give satisfaction. Best references as to character and ability. No. 5657.

WANT position as sewing machine fixer. Union Special Machines preferred. Experienced and reliable. No. 5658.

HERCULES POWDER ACQUIRES VIRGINIA CELLULOSE

As of July 1, this year, Hercules Powder Company of Wilmington, Del., succeeds to the asets and business of the Virginia Cellulose Company, Inc. (a subsidiary wholly owned by Hercules Powder Company since July 1, 1926, and which is to be dissolved), and will carry out the contracts and perform the obligations of the Virginia Cellulose Company, Inc. This business taken over by Hercules Powder Company will be known as the Virginia Cellulose Department and will be under the direction of the same personnel as heretofore.

This arrangement will not only unify and coordinate the business of Hercules Powder Company but, by the grouping together of its technical and engineering forces, will also better qualify it to serve directly the industry.

NEW RAYON PLANT TO USE WOOD PULP

Richmond, Va. — Hopewell's new rayon plant which will be constructed by the American Chatillon Corporation and the Tubize Artificial Silk Co. will use wood pulp in stead of cotton linters in the manufacture of rayon, according to information received here.

The new plant is to be started at Hopewell immediately upon completion of the Rome, Ga., plant, and will be almost similar in proportions to that plant. The work in Georgia is being rushed to completion and building at Hopewell should start by fall. The Hopewell plant is to cost $4,000,000 and will employ 1,800 persons to begin with.

NINTH TEXTILE EXPOSITION

Greenville, S. C. — One hundred and twenty-five applications for space have been received for the ninth Southern Textile Exposition, to be held October 20th to 25th, 1930, in Textile Hall.

The entertainment of visitors during show week will be in the hands of a Chamber of Commerce committee and will include a dinner, several luncheons, an exposition ball and a number of other interesting functions. The program is being developed by the president and secretary of the corporation. A questionarrie will be sent out in a few days to exhibitors covering several proposed changes in the regulations.

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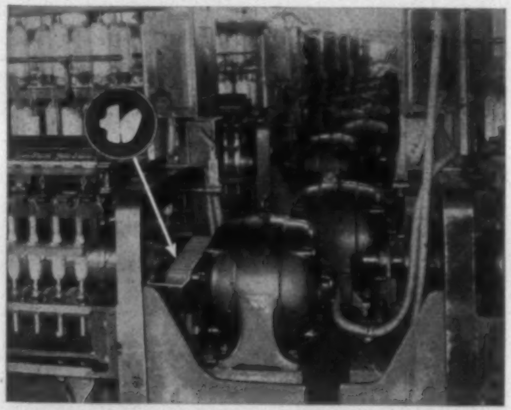

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For textile mill power transmission

Power consumption plays an important part in production costs and, in many cases, can be controlled more carefully by the correct power drive application. Morse Textile Drives are designed by experienced Transmission Engineers to meet exactly the requirements of textile mills. Many textile mills have cut power costs and increased production by transmitting power by Morse Drives. 98.6% efficient, positive, flexible, ideal for short centers. Ask the nearest Morse Transmission Engineer for complete details.

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The Extra-wear Spinning Ring

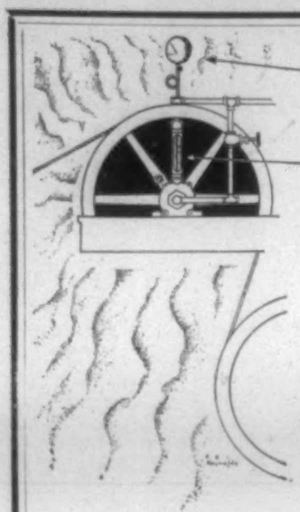
DIAMOND FINISH

"There's a ring that's not a 'sideline'!"

"Maybe I'm old fashioned, but the idea of the old-time craftsman who did one job well, appeals to me. The folks who make DIAMOND FINISH Spinning Rings have specialized in rings alone since 1873. They've GOT to make them extra good. It's their whole business."

Free samples gladly sent

Whitinsville (Mass.) SPINNING RING CO.



PRESSURE
- VS -
TEMPERATURE

Only a THERMOMETER can indicate drying cylinder temperature accurately.

IN sizing rayon warps the temperature of drying cylinders is very important. If insufficient, warps will not dry thoroughly; if excessive, ends will bake, resulting in either case in lost production and impaired quality.

While the steam gauge will show the pressure, it will not show whether it be produced by ***active steam, wet steam, water, or air.*** Thermometers only will indicate the actual cylinder ***temperature.***

For this reason each cylinder on the Johnson Improved Sizer is provided with a thermometer by means of which the operator knows definitely the temperature he is working with.

CHARLES B. JOHNSON
10 Ramapo Ave., Paterson, N. J.

The Johnson *improved* Warp-sizer

Representatives

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The South
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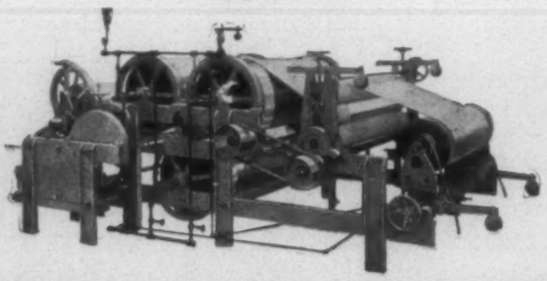

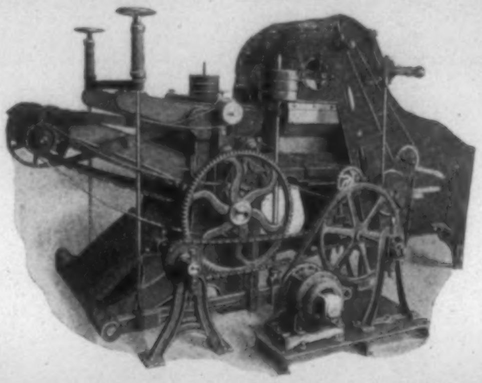

Continuous Automatic Extractor

This apparatus consists of a ruggedly mounted pair of 12" diameter compound lever weighted squeeze rolls, with adjustable feed and doffer aprons, to which bleach or dye liquor saturated cotton or wool is continuously delivered by an Automatic Feed and by which the maximum percentage of such contained liquid is squeezed from the fibres and runs to waste or is recovered as the situation demands.

Why not employ this modern Extractor in your dyehouse?

C. G. SARGENT'S SONS CORP.
Graniteville, Mass.

Builders of Cotton Stock Drying Machines
and Yarn Conditioning Machines

Fred H. White, Southern Representative, Charlotte, N. C.

FIG.27

LANE

Patent Steel Frame
Canvas Mill Trucks

Its outstanding features are Strength, Durability, Economy and satisfactory service through a long term of years. All due to proper designing and combining of the Lane standard of raw materials.

W. T. Lane & Brothers

Originators and Manufacturers of
Canvas Baskets for 25 years

Poughkeepsie, N. Y.

HOME SECTION

SOUTHERN TEXTILE BULLETIN

Edited by "Becky Ann" (Mrs. Ethel Thomas)

CHARLOTTE, N. C., JUNE, 20, 1929

News of the Mill Villages

HUNTSVILLE, ALA.

Margaret Mill

Dear Aunt Becky:

I wish to write to express regret of the entire force of Margaret Mill in not getting to see you on your visit here, as we were on short time; but we hope this won't continue long.

The Pathfinder Class enjoyed their regular monthly social Tuesday night at Community Center. We have a fine class and a fine teacher, —Miss Helen Petty.

Miss Hattie Sue and Effie Findley spent last week-end at their country home near Toney.

Miss Mae Thrift spent last week-end with relatives and friends in Athens.

Mr. R. A. Anderson and a bunch of his friends are enjoying a fishing trip.

Our overseers are: Mr. Dave Neely, overseer card room, day and night, with his assistants; Mr. R. A. Anderson, overseer spinning and winder room with Floyd Price and E. E. Lyle, second hands in day time and Mr. Fife and Mr. J. E. Walling second hands at night, with Raymond Steelman as righthand man.

Aunt Becky, we hope you will visit us again when we are running.

JUST JACK.

YORK, S. C.

One Man Band of York, Starts Upon Long Tour

James G. Johnson, widely known York musician, left Monday with a party of 100 persons, headed by Prof. D. R. Haworth of Catawba College, Salisbury, N. C., on a transcontinental tour.

On this trip Mr. Johnson will be featured as "York's One Man Band" and he will give concerts and broadcast from radio stations. He plays the harmonica, guitar, snare drum, bass drum and cybols, simitaneously, making music that in volume and quality compares favorably with that of a small orchestra.

The party of which Mr. Johnson is a member will make the long trip across the continent in automobiles. They will visit all the leading scenic spots of the West. They have a moving picture machine with them, and their camp life and other activities will be shown on news reels in movie theaters. The tour will last about seven weeks.

The Cannon ball team played a great and exciting game in Gastonia Saturday; the game went 10 innings for a tie of 5 to 5. Nivens, York's star pitcher, had the opponents eating out of his hand until it started a downpour of rain. "Hap" Roth, another Clemson star was among the boys.

A medicine show recently visited this city giving free out-side exhibitions at night. "Red" Ashe, a popular textile worker, was voted the "ugliest man in York." The prize given "Red" was a corset; whether or not "Red" knew how to make use of it, is more than this scribe knows.

CHAS. L. CURRY.

Everyone in the mill will enjoy the Home Section. Give away your copy after you finish it.

SELMA, ALA.

Sunset Village News

It is almost time for the judges to get busy at their task of deciding the winners in the beautifying contest. They will certainly have a job, for every yard is an array of many bright colors. We are all happy when we are out in our gardens. Why shouldn't we be happy in such a beautiful village and good people?

Our mill is running full time with plenty of help.

The repainting of the houses which is now being done will add so much beauty to our village.

On Monday nights of each week the pastor, Rev. E. W. Roberts, shows a Bible picture which is enjoyed very much. Our Sunday school is growing in attendance. We had the largest number present Sunday that we have had in some time. Somebody is getting busy; who is it?

Miss Mary Crider, who has been ill for the past two weeks, was carried to the Baptist hospital Thursday. She is much improved and will be able to return home soon.

Little John Milton Britton has been ill for several days, but is much better now.

Mrs. Lillie Suttles is back at work after several weeks illness.

Miss Minnie May was called to McComb, Miss., the past week by the serious illness of her sister.

Mr. and Mrs. F. M. Crabtree and Mr. and Mrs. Raymond Crabtree were visitors to our village recently.

Mr. Noel Simmons of Humboldt, Tenn., visited Miss Ruby Ledbetter recently.

Mr. Newell Rogers of Birmingham, Ala., is the guest of Mr. and Mrs. R. W. Rogers.

Quite a crowd of our village folks attended the ball game in Montgomery yesterday.

Mr. and Mrs. Jack Stone are receiving congratulations upon the birth of a daughter, June 2nd, whom they have named Willie Mae.

Say, "Hooks," don't forget the fish sandwich. I have more flowers than I can keep picked, so I'd much rather have the sandwich. I'm sure "Little Willie" will bring it. Won't you "Little Willie?" If you knew how hungry I get some times I'm sure you will.

BLUE BIRD.

Becky Ann's Own Page

SHORT LETTERS PLEASE

We have a large number of correspondents, and in order that all may have a seat around our table, we must "sit close." So please give us the news in as short form as possible.

AUNT BECKY.

SYLACAUGA, ALA.

Central Mill

(By Aunt Becky)

Couldn't get it all in the paper last week, nor will I ever be able to tell all I wish. One of the most touching bits of human interest, and proof that "it pays to be kind," is evidenced in the life of J. S. Shell, overseer of carding at Central Mill. Twenty years ago while just a lad, he was running around with a "cheap show," when Mr. B. B. Scott, got hold of him, gave him a chance, thrilled him with ambition, and made a man of him. Mr. Scott took him into his own home, threw a wall of love, protection and encouragement around him, — was a real father to the boy, who is now one of the best carders in the State, and a mighty fine young man. G. A. Thrash is his second hand.

M. W. Park is overseer of spinning, with A. A. Long, second hand in spinning and O. R. Chappell, second hand in winding. Everybody in these mills are fine healthy looking people, have hearty hand shakes and winning smiles. Happy? I'll say they are!

Catherine Mill

J. H. Garrett, overseer carding has been here 12 years, and his second hand, R. O. Nelson, 20 years, In fact, nearly all the leaders have been here for many years—some of them the entire life of the mills.

D. W. Mizzell, and C. H. Mizzell, are card grinders, R. E. Robinson, and G. W. Grady, section men, and H. D. Osborne, one of the "coming" men.

O. S. Smith, overseer spinning has been here 15 years; E. A. Tarpley, J. T. Childress, Dee Narred and J. H. Abernathy, are among the live-wire section men.

J. E. Sawyer is overseer finishing, and J. T. Kelley, second hand; J. W. Sellers, overseer packing for Central and Catherine Mills, with J. W. Gaylor, second hand.

Our very best wishes go out to all the good people of Sylacauga, along with sincere appreciation for every courtesy and help extended. I wish I could spend a week there, some time.

SYCAMORE, ALA.

This is another of the Avondale group of mills, with Hr. Hugh Comer, manager; Mr. E. S. Mitchell is the courteous and efficient office manager, and Mr. O. H. Dunn, superintendent.

Mr. Dunn took me around to see his lovely wife and sweet baby, and to the nursery, which is truly a wonderful place. The children are given breakfast, lunch and plenty of good wholesome milk and fruit in between. Every child has its own snow white crib, and the entire place is kept in beautiful order. The play room is furnished with every conceivable convenience, with loads of toys to suit different ages. Graduate nurses are in charge.

There's a good school, basket ball and base ball teams, an up-to-date store, a band of 5 pieces, and the "best" of overseers.

A. H. Haddock, is carder; V. A. Mims, spinner; B. A. Williams, winder; S. T. Roberts, master mechanic.

Being one of the "Avondale" mills, —everything is "just right," and kindness and courtesy comes as natural as breathing.

About everyone takes The Bulletin, but those Alabama gentlemen were determined that "Aunt Becky" should not go away "empty-handed." So, Cecil Blair, roll coverer, Robert Stewart, oiler and C. M. Brooks, section man joined our happy family of readers.

TALLADEGA, ALA.

Samoset Mills

I only had a very few moments here, but Mr. John G. Chapman, general manager, and Mr. E. E. Price, assistant manager, saw that that those few moments were well filled.

I had the pleasure of meeting Miss Cunningham, who is in charge of the kindergarten and library, and Miss Ferra Mason, community nurse, and don't wonder that the young people "are crazy about them both."

About every department head in this mill and many others, are regular readers of The Bulletin, and speak of it in terms of great praise. In fact, they know a good thing when they see it.

E. E. Price is overseer carding and spinning, spooling and warping and assistant manager; W. W. Harris is day second hand in carding; Josh Patterson, second hand in day spinning; W. L. Phurough, second hand day spooling and warping.

D. F. Herring overseer weaving, with R. D. Rutledge, second hand; H. O. Erwin, overseer cloth room, with E. R. Erwin, second hand.

Talladega has made improvements in keeping with the rapid progress made in this section of the State, and is mighty proud of the large new mill now going up as well as those already running.

ANNISTON, ALA.

Another disappointment — Mr. Scott Roberts was in court, (or courting) and I couldn't see him. But I visited his mill and saw the courteous and agreeable manager, Mr. W. P. Hazelwood, and superintendent J. A. Bradley, and met some of the nice people of the village.

This mill is small, but works a large number of people for its size, and pays extra good wages, I was told.

Anniston Mfg. Co.

This mill has 15,000 spindles and 324 looms, on extra nice sheeting and drills.

Here again, we were met with that fine courtesy for which Alabama is famous, and our sincere thanks go out to the officials.

W. Goldsworthy, superintendent, is proud of his mill and people, and has a right to be. One of the most up-to-date opening room with modern machinery is among late improvements, and other improvements planned for the future.

Some of the most gorgeous cannas we have seen, were growing in the mill yard; a rippling stream of clear water, added to the attractions.

W. E. Evan, is overseer carding; with W. H. Gay, second hand; S. E. Noyes, overseer spinning has been on the job since 1880. He is 76 years old, but looks so young, that Mr. Goldsworthy says the "child labor inspectors" look at him mighty hard when they come around, and he expects most any day that they will make him quit work and go to school! All jokes aside—he could easily pass for 50, and is as spry as 21. He's a wonder, and no mistake.

D. C. Bennett, is overseer day weaving, with Kelley Ward, second hand; O. C. Wood, is night weaver.

J. W. Cox, is assistant superintendent, and overseer the cloth room.

Messrs. J. W. Cox, D. C. Bennett, and Kelley Ward, honored "Aunt Becky" with their subscriptions. Everybody else was already getting the Bulletin, and enjoyed it.

During the few days I was in dear old Alabama, I secured 152 subscribers to add to the already fine list gotten up by our Mr. Phillips, who was everywhere "just ahead of me." But it was all due to that wonderful and never failing courtesy and chivalry, that Alabama gentlemen always extend to ladies, and makes us all love them!

W. H. STILL IN TEXAS

Having The Time of His Life

Dear Mrs. Thomas:

I am still out in Texas—with the "long horns." Don't have to "shoot the bull"—just look at them by the thousands.

I left North Carolina on Train No. 33 for New Orleans, La., and got there in 24 hours without having to change trains.

Found Maginnis Mills closed for one week and men most all gone away for a few days; but met Mr. S. Schwartz, the superintendent; found him very busy but fine and clever; wanted me to come back and see all of his men.

Next I went to Lane Cotton Mills where I found everything in full swing. Mr. Wm. C. Ryckman, superintendent, finest fellow I have seen in a long time, has a way of making you feel at home. I met his overseers, but missed getting all of their names. I remember Mr. A. A. Howard, overseer carding; J. R. Cannon, overseer spinning; E. Staltz, overseer weaving and slashing; H. Lawrence, overseer cloth room.

New Orleans is a fine city. While there I had the pleasure of taking dinner with Rev. and Mrs. Carl G. Campbell. Mrs. Campbell is a niece of the writer, and daughter of Rev. J. H. Washington of Laurens, S. C. Rev. Campbell will soon graduate with Dr. degree. He and his good wife drove me to the station to catch 9 o'clock train for Galveston, Texas.

Water was high and I felt lucky to get as far as Houston. The country was covered for miles with water, so I did not go to Galveston, but headed for Waco, for the textile meeting. Got in Waco, Friday morning. Will say right now I will sleep good tonight, the first night I have spent off trains since I left North Carolina.

The Texas boys sure had a good meeting and I did enjoy it.

Saturday morning, 8 oclock, all met at the hotel for a car ride, sightseeing through park of over 2,000 acres.

I left Waco Saturday night on sleeper for San Antonio, and got in this town about 7:30 a. m., Sunday morning. They do things different in some places in Texas to what we do in the Carolinas. Shoe shops and stores are open. Will tell you more soon, about San Antonio.

W. H. STILL.

SALISBURY, N. C.

Rowan Mill

Dear Aunt Becky:

In my last letter I told something of our village, however there are some things I did not mention because I supposed that space would be limited in the Home Section. (It is.—Aunt Becky.)

We have two church organizations, Baptist and Methodist. Rev. R. L. Deweese is the Baptist pastor and Rev. J. H. Strickland the Methodist pastor. They are starting a joint revival and it is hoped that the meeting will be a great success.

The Baptists are erecting a nice brick church, which is a credit to our little village.

Mr. E. L. Bradshaw and H. T. Davis made a recent visit to Albemarle and the Efird Mills where they met the overseers and received a warm welcome. Mr. J. B. Tolbert and Mr. N. F. Thompson conducted them through the mills, showing and explaining their different systems of operation, which was interesting, and proved that these men are on to their jobs, and are cooperating for the interest of one another.

There seems to be a spirit of cooperation developing among the overseers in different sections of the textile industry which is proving helpful. If the employes could all be taught the value of cooperation it would be a blessing to them and to the textile industry.

The friends of the Bost boys and girls, offer sympathy in the loss of their sister, Rosie, who recently passed from this life.

The little son of Mr. and Mrs. L. G Miller is improving from a recent illness.

Mr. Percy Bowen who has an attack of pneumonia is improving.

The "Sons and Daughters of Liberty" made a recent visit to Salisbury Council No. 5, several were given the initiation. After the meeting refreshments were served.

Miss Francis Owen recently visited her parents at Mocksville, and had a nice time.

STANLEY CLAY.

HARTSVILLE, S. C.

Dear Aunt Becky:

We don't know any labor troubles here. The fact that our help are contented is evidenced in the greatest production in the history of our mill, during the month of May.

We think Mr. Blackman, overseer weaving, just tried himself; in fact, he is the talk of the town. (But doesn't know it). Would like for some of the mill help that claim they "can't live," and are "walking out" and causing shut downs, to have a look around Hartsville and talk with some of our help. I think they would return home, take their harp from the willow, and sing as never before, "My Country Tis of Thee." Aunt Becky, I can't believe that any of our mill executives are the monsters some people picture them. I haven't seen any horns or claws on any of our executives here. (And you won't find such things anywhere.—Aunt Becky.)

On May 24th the Woodmen Circle here gave a banquet which was attended by a very large number of members; they had some special guests presents, who gave them many words of commendation and praise.

Aunt Becky, I am going to give you the names of those in our mill village graduating from high school this year: Miss Thelma Carpenter, daughter of our general superintendent, Mr. W. A. Carpenter. Misses Autha and Aline Smook, daughters of Rev. and Mrs. D. T. Smook. Rev. Mr. Smook is pastor of Twitty Chapel M. E. Church here. Mr. Smook and family have only been in our community a few months, but during this short time they have won a place in the hearts of us all.

Our ball club is doing some fine work now, but were defeated yesterday by the Oats team 5-4 in favor of the latter.

Mr. J. L. Swett, card grinder here for the past 2 years, has resigned his position and is succeeded by Mr. C. V. Singletary from Rockingham, N. C.

In the card room, Mr. J. C. Morton is overseer, Mr. E. T. Porter, second hand; Mr. Troy Weaver, speeder section hand, and Mr. C. V. Singletary, card grinder.

Mr. Swett has accepted a position with the Kershaw Cotton Mills, at Kershaw, S. C.

Mr. Roy Lemon, second hand in spinning room, will leave in a few days for Johns Hopkins Hospital, Baltimore, Md., to undergo examination and treatment for kidney trouble. We all hope for him a complete recovery.

KITTY.

THOMASTON, GA.

Martha Mills

Dear Aunt Becky:

I ain't never seen nothin' in your paper from this place and I ain't never wrote you before; knowin' I ain't no hand at writin'; but, I can't see why such a good place as this shouldn't be represented in your paper, so here goes my "maiden speech."

Our baseball team has started as

usual. Reynolds came up last Saturday and promised to be out in' out of a 6 to 0 game and our boys let Manchester have one run out of seven yesterday, June th. We missed our band at the game yesterday but they "done their stuff" well last Saturday and promised to be out with bells on tomorrow when we play Macon.

"Aunt Becky," you ought to see this place around Martha Mills. Steam shovels, mules, trucks, saw mills, hoisting wagons and everything going at high speed, and Lord, how these buildings are going up! We go in to work in the morning and come out at noon and things have changed so much we get lost. But gee! this is going to be a "whopper" when they get the new machinery in, and I hear it starts rolling in July.

I don't see where all the folks are coming from that will be needed to run this big place but I know these "bosses" will have all they need from somewhere, 'cause there hain't never been a machine stopped here for help, day nor night since the mill started up over two years ago. Mr. O. E. Wilson is overseer carding; J. M. Wilborn, overseer spinning; L. B. Guest, overseer twisting and finishing; J. M. Davis, master mechanic; J. C. Edwards, superintendent and Mr. Albert T. Matthews, vice-president and general manager.

These fellows seem to be the busiest folks around here, to be sure, and I know with running one mill and building another one twice as big they ain't havin' no vacations now.

I want you to come and see our mill as soon as it is finished. Gee, great big, white stone entrances at all stairways, the prettiest houses going up all over the country! Seems like a big, new town springing up overnight.

I must stop now and write you all about this place later if you will let me. (We'll be glad to hear from you.—Aunt Becky).

I knew you 'way back 25 years ago when you were sucking shuttles; but you wouldn't know me, 'cause I've cut a complete set of teeth since you saw me.

SALAMANDER.

WHITEHALL, GA.

Dear Aunt Becky:

Our school closed Friday night. The school gave a very nice program Thursday night. Miss Josephine Montgomery, Miss Luie Dell Nunnely, Miss Lillian Towns and Mr. Towns Roberts, all four 13 years of age, graduated; the school gave a nice little carnival Friday night.

Mrs. E. J. Boswell visited her daughter at Elberton Saturday and Sunday.

Little Junior Cooper, four years of age, is spending the week with his grandmother, Mrs. E. J. Boswell, at Whitehall.

We are very glad to welcome our new night overseer of spinning, Mr. Pat Dammons.

I am very glad that our work is still running good.

BLUE-EYED LEE.

GOLDVILLE, S. C.

The Joanna News

Mr. and Mrs. C. W. Hudgens of Greenville spent the week-end with Mr. and Mrs. S. R. Timmerman.

Mr. and Mrs. P. E. Hendrix of Columbia spent Sunday with Mr. and Mrs. John Cook.

Mr. and Mrs. John Templeton and family and Mrs. J. C. Templeton of Whitmire and Mr. and Mrs. W. H. Franks of Clinton were Sunday guests of Mr. and Mrs. O. M. Templeton.

Mr. and Mrs. J. S. Dodgens, and Mr. and Mrs. J. E. Dodgens of Greenwood spent Sunday with Mr. and Mrs. J. E. Holsomback.

Mr. and Mrs. Dan Martin of Atlanta, Ga., are spending a few days with her mother, Mrs. J. E. Hamm.

Mrs. R. L. Martin is visiting her mother in Manning, S. C.

Mr. and Mrs. Clarence Darby of Ware Shoals are visiting Mrs. Nancy Hackett.

Mr. Carl Stroud of the U. S. N. is visiting his mother, Mrs. W. B. Stroud.

Miss Sarah Edwards is attending the Epworth League Assembly at Lander College, Greenwood, S. C., this week.

Miss Helen Grant, Mr. James Fulmer and Mr. Leroy Hamm left Monday to attend the Opportunity School in Due West, S. C.

Our play ground is open from 7:00 to 9:00 a. m. and from 4:00 to 6:00 p. m.

Several cases of whooping cough have been reported in the village. None of them have proven serious thus far. If those who have it will stay in for a few weeks, an epidemic may be prevented.

Goldville (first nine) defeated Lydia Mill in the game here Saturday with a score of 2 to 1.

Goldville (second nine) defeated Clinton at Clinton last Saturday 8 to 2.

Ward-Crowder

At 8:00 p. m., Sunday, June 9th, Miss Aliene Ward and Mr. A. L. Crowder were married at the home of the bride on Crescent Ave, Rev. H. E. Bullington officiating. Friends wish them many years of happiness.

Red Men Meet

The district meeting of the Improved Order of Red Men was held at Clinton, Monday night, June 10th. Nine tribes were represented. Lapahaw Tribe, No. 132, of Goldville had more members present than any other one tribe. Through the cooperation of the people of Goldville, we expect to lead in any task undertaken.

The following speakers were heard at the meeting—C. A. Powell and T. W. Bennett of Laurens, S. C. B. B. Lightsey and O. S. Goree of Newberry, S. C., G. W. Cox of Anderson, S. C., Eugene Ross of Greenville, S. C., J. C Cannon of Clinton, S. C., W. A. Burgess of New Jersey.

Lapahaw Tribe was organized on May 31st with eighteen members. At present date we have on roll ninety-three and hope to continue growing.

ALBANY, GA.

Flint River Cotton Mill

Our ball team is still winning; they played Pelham June 1st and defeated them by a score of 6 to 1; Mr. Hugh Herring is manager, and he is some hustler in baseball.

Miss Burnice Courson and Mr. George Dodd were married Sunday at 10:30 o'clock at the home of the bride's parents, Mr. and Mrs. J. L. Courson. Rev. J. A. Thornton performed the ceremony. The family and a few close, friends were witnesses. The bride is a very popular young girl in the social activities of our community. She was lovely in a gown of blue georgette with accessories to match. The groom is a fine man. Mr. and Mrs. Dodd will be gone on their honeymoon for two weeks, then they will make their home with us.

Mrs. R. Bray and children spent the week-end with her mother Mrs. E. W. Barrett.

Mr. Frank Akin, of Americus, spent Monday with his mother, Mrs. B. H. Akin.

Mr. and Mrs. Dan Willis and children, Mr. and Mrs. Lige Smallwood and baby motored to Pelham Sunday and spent the day with Mr. and Mrs. Charlie Parrish.

Mr. and Mrs. Henry Anderson, Mr. and Mrs. Felton Lockey and Miss Lillian Lockey motored to Moultrie, Sunday and spent the day with their uncle, Mr. Lewis Martin.

Mr. and Mrs. D. L. Robinson are the proud parents of a fine baby boy.

Come on "Little Johnnie," write some more letters; I lived in your city one time. I have some relatives there and lots of friends; try to guess who I am.

Aunt Becky your story, "For Her Children's Sake" is fine. Hurry and get Fred out of jail.

CURLY HEAD.

For Her Children's Sake

By

MRS. ETHEL THOMAS

(Continued from Last Week)

"Fred!" And Paula's hands went through the bars—"Sweetheart! Hold my hands on your heart while I tell you something." Fred's face went whiter still and he closed his eyes to shut out the heaven that love offered.

"Darling! Be merciful and leave me—I must not touch you!" he groaned. "I am ruined—disgraced—wretched, undone. I deserve it all, but my punishment is more than I can bear."

"Fred, come nearer, please—I love you, dear. Nothing can change that fact. Don't you see my hands, dearest? —don't you love me any more?" she pleaded.

"Paula—oh—my little angel!" he whispered, catching her hands and covering them with kisses and tears, "I don't deserve this—but I do thank God for your love."

"Mama is here, with me; Daddy and Paul are in the city—we know all about it—we believe in your innocence—and we mean to stick to you," said Paula, after a moment of eloquent silence.

"Your mother?" echoed Fred in surprise.

"Yes, dearest; she, too knows everything, and oh—how I have wronged and misjudged her. Had she known that we really loved each other, and that all my happiness depended upon you, she would not have been unreasonable."

Then Emily joined Paula, shaking Fred's hand warmly, her heart strangely tender as she gazed upon his pale despairing face.

"I am going to leave Paula with your mother a day or two, and she can visit you often," comforted Emily.

"Mrs. Trent, as God is my witness, I am innocent of the charge against me," said Fred. "But I have no hope of proving it. I am doomed. My sins have found me out; and I have ruined Paula's life. Take her away—for God's sake take her away where she won't see or know of my shame. To think that she, too, must suffer is more than I can bear." Emily smiled through her tears, as Fred's face was again bowed over Paula's hands.

"Her love wouldn't be worth much—if she would consent to leave you alone in the hour of your bitterest need. I know my little girl better than that."

"Why darling," said Paula, "to help you bear this burden—to be allowed to share your sorrow, is more to me than any earthly joy that any other man could offer."

"But sweetheart—they may hang me! the evidence is all against me."

"Never! Never! for God is just and merciful. Put your trust in Him. Read this, and be comforted," and Paula slipped a little testament from her muff and passed it through the bars.

Nobody's Business

By Gee McGee.

MY BATCHING EXPERIENCE

A few weeks ago, it fell my lot to keep batch for several days. I am an independent cuss to say the least of me, and the first thing I did was to let everybody know that I could take care of myself, so my neighbors and kinfolks were deprived of the pleasure (?) of aiding and abetting me through the lonesome journey that I was about to sojourn into, as the poet would say.

The first meal I undertook to prepare was breakfast. I formed the following menu in my mind's eye, and sat out to serve it unto myself Soft scrambled eggs, toast, coffee and breakfast bacon. I hunted around in the kitchen for 30 or 40 minutes before I found a frying pan. (I had always noticed before that we had at least 45 frying pans in the kitchen but darned if I could find one).

I looked for a match 10 minutes with which to light the gas, then I spent 5 minutes looking for some lard to grease the pan with, and when the frying pan began to sizzle, I discovered that there were no eggs to be had, or at least—I didn't find any before the grease in the pan caught fire and burnt up.

I decided then to have buttered toast, coffee, and breakfast bacon. I hunted all over the pantry and kitchen and backyard for that bacon, and never found a trace of it. (I am possessed of a non-finding complex. I never could find a rabbit in the bed, and many a time have I hunted 55 to 60 minutes for my hat when it would be lying right on the floor at my feet. (My wife never sends me for anything; she knows I can't find it).

I surrendered to plain toast and coffee, and began to hunt the coffee pot. We had 3 perfectly good coffee pots before my wife went away, but somebody must have stolen them. I made up my mind right then and there that coffee was conjurious to my institution, so began a hunt for some milk which I never found. And I have never known who hid 3 loaves of bread on the dining room table. I didn't find them till 4 days later.

I decided that I'd cook some biscuit as I had to have something to eat. I got the flour emptied into the tray and soda about 9.25 a. m. As we had no milk (I found that we had 5 quarts in the ice-box the next day), I used water. About the time I got dough all over me from my finger tips to the back of my neck, the telephone rang. I was called to the office. I fasted till lunch time, and after a good meal at a regular eating joint, I figgered that it was cheaper not to do my own cooking than it was to waste half the day hunting for some stuff to cook. I'm cured.

HILLSBORO, N. C.

Bellvue Cotton Mill

Dear Aunt Becky:

We are working on short time, three nights to the week, but hope it won't last long.

I have a good job and like the place fine. We have a nice overseer, Mr. A. B. Brown; Mr. P. F. Emery is the second hand in the spinning room.

Mr. and Mrs. Markin Hunt spent Sunday afternoon with Mr. and Mrs. J. L. Robinson.

Mr. J. D. Hursey is spending a couple of weeks with Mr. and Mrs. J. L. Robinson.

Mr. Charlie James and his mother left for South Boston, recently.

Mr. O. W. Robinson spent Saturday night with his brother, Mr. E. C. Robinson.

THE HONEY BEE.

ROME, GA.

Anchor Duck Mills

Dear Aunt Becky:

Here I come again; I hope that all the people of other mills throughout the country are as well satisfied as we are. Everybody seems happy down here.

M. J. Tilley has returned to work after staying two weeks at Jacksonville, Fla., where he was at the bedside of his father, who died June 8th.

Ernest Pierce made a trip to Chattanooga, Tenn., Sunday to see the Atlanta Crackers and Chattanooga Lookouts play; he said it was a good game.

E. A. Craddock made a trip to Opelika, Ala.,—his old home, and of course he took Red Burdell along to do his cussing and fix punctures; there was plenty of both to do!

Well, Aunt Becky, your story can't be beat; we sure do like it. Please don't let anything happen to the twins if you can help it; I hope that they win out.

DOCK.

GREENWOOD, S. C.

Greenwood Cotton Mill

Dear Aunt Becky:

Our mill is running on full time and everybody working and oh! we are building a new cloth room; it will be one of the finest in South Carolina, and they are painting the houses on the inside.

We had a real good ball game yesterday at Ninety-Six; the game was 2 and 3 in favor of Greenwood, but we had to play ten innings; they sure did give us a good game.

We are sorry to report that Mr. George Wilson had a stroke of paralysis last Saturday morning and is very ill.

We are very sorry to lose Mr. and Mrs. Ben Dillashaw; he has taken a job as police in town and we wish him success.

Mrs. Charlie Mobley, of Bamburg, is the week-end guest of her mother, Mrs. E. Williams.

We are glad to report that Mrs. J. L. Dorn who has been in the hospital in Augusta was able to return home this week, accompanied by her daughter, Mrs. Floyd

CHAPTER XXVI

Left alone in his cell, Fred Elliott almost bereft of reason, sank down on his cot, bowed his head in his hands and groaned aloud.

His whole life, every wilful, premediated sin, — and they were numerous—passed in panoramic view before his mental vision. Deep down in his soul he acknowledged that he was reaping the inevitable harvest of what he had sown, and knew that he deserved all he was suffering; but the thought that those whom he loved best — his parents and Paula — suffered every pang that pierced his soul, was the hardest of all to bear. Why must they be tortured with grief for his sins? Why, oh why? They were innocent, yet they, too, must pay!

"Oh, God, spare my mother and sweet little Paula!" he prayed. "Punish me—I deserve it all,—but spare my loved ones!"

He wondered how it was that he, with all his opportunities, had failed so utterly; and in the review of his life, he saw clearly that the greatest fault had been in his training.

He knew that his parents had meant well, in lavishly supplying him with money and a superabundance of kindness. They never dreamed that in their everyday parlor amusements, Fred would acquire a passion for cards that would be his ruin. In their frantic efforts to make home attractive and life easy, they had forgotten to teach him that all things worth while must be climbed after, and they had succeeded in making the way so smooth, that he had fallen.

"Oh, why wasn't I born poor and compelled to work for a living?" he moaned.

"And now, after I have fallen as low as man can fall, why must I meet and love an angel,—why must she care for me, when I can bring her nothing, not even the shreds of a once clean character? Oh, God, why didn't I know years ago that someday I would reach the point where I would give my life to be clean? Why didn't I know that there was a Paula with starry eyes and pure soul, coming out of all the world, to light a holy flame in my heart? Why didn't I know?

"And she can never be mine. Oh, it is better to die than live with empty arms, and starve for love and kisses. Could I possibly be set free, Paula is not for me—I see and realize it all clearly now. My lips have rained vile kisses on the lips of shameless ones whom I have held in my arms—Paula is pure as a dew drop, and I must never touch her. I'd rather die, but not for murder! I am not fit to live—nor prepared for death. God have mercy!"

And thus Fred Elliott raved on, throughout that long Saturday night, lashed by conscience, tortured with the horrible thought that he must die for a crime of which he was innocent in act, yet feeling guilty and deserving death.

He had tried to read the little Testament Paula had brought him, but the light was dim, and the little he read condemned him further and made him more miserable.

Sam and Paul had called just after Emily and Paula had gone, and tried to cheer him, but while grateful for their sympathy he found no comfort or hope anywhere.

His father and Paula had called before the jail doors were locked for the night, and in their presence Fred tried to keep up a bold front, but Dr. Elliott knew intuitively that his boy had seen the door of hope close in his face, and could not even "peep over the bars."

In vain did the father bid him be of good cheer that famous surgeons were with Lula Neal, and there was a chance that she would at least regain consciousness. Surely she would not dare meet her Maker with a lie on her lips.

But Fred shook his head hopelessly, and looking at Paula, with renunciation clearly stamped on his face he said:

"She tried to commit suicide; she leaped into the jaws of death screaming 'murder.' She meant to die and to leave no loop-hole of escape for me; she will never confess the truth. She meant to ruin me and she has succeeded."

"I shall be right there the moment they expect her to become conscious," began Paula, "and I shall plead with her to save you."

"Paula, darling! Don't go near that fallen woman—I can't bear to think of your breathing the same vile atmosphere."

That was an unlucky outburst and Paula's starry eyes, full of love and pity, regarded him speculatively, while she answered gently:

"But Fred, she is my sister,—fallen perhaps, but why? I don't know. Perhaps because she loved and trusted some one too well. Why must I not give her my sympathy when I give you my love?"

"Oh little girl, your logic is unanswerable. Neither she nor I are worthy one thought of yours. Please don't go near her—please don't come here again. Loving you is the greatest, purest most sacred thing that has ever come into my life, but were I free I'd never claim you. Darling don't stay here and witness my shame. If you love me now—oh, be merciful and go, before you see my disgrace and loathe me."

"Fred, listen. Don't add to my grief. Don't you know that to fight for you now, and to win, is my whole heart's desire? That I count it an honor and a privilege to love and help you in your hour of need? Oh, what is love worth that is not the same through joy or sorrow, through glory or shame? Didn't I tell you dear, that nothing should come between us? And there shall not! God meant us for each other. This is not the end," she declared, her pure face radiant with hope; and Fred's lips quivered piteously.

Sunday morning, Paula was up early. She could hear no one about the house and supposed that the Dr. and Mrs.

I could fill the whole Home Section but I won't be "greedy."

BETTY.

LOWELL, N. C.

National Weaving Co.

Dear Aunt Becky:

As I have never seen any news from our mill I will take the pleasure of writing.

Mr. and Mrs. A. H. Mason had as their guest last Sunday, Miss Rose Smith of Cramerton, N. C.

Mr. R. B. Kirby of Laurens, S. C., made a short visit to his brother, J. B. Kirby last Thursday.

We are all glad to see Mrs. Robert Jackson and her little daughter, Elizabeth, back home again after undergoing an operation at the Spartanburg hospital.

The girls club of National Weaving are giving an ice cream supper, Saturday, June 15th. The money will go to the basket ball girls.

"Aunt Becky," our mill is small but if you could visit it I am sure you would like it, and I know everybody would enjoy having you.

BOOTS.

MARION, N. C.

Clinchfield Mills

The members of Etowah Tribe Improved Order of Red Men, delightfully entertained the members of the Pocahontas Order with a fish stew and square dance at the Buck Creek Club house, last Saturday evening.

Mrs. Sarah Ellis has returned from Spartanburg where she spent several weeks with her son, Mr. J. H. Ellis, at Beaumont Mills.

Mr. and Mrs. James B. McLaughlin and children and Mr. W. E. Maddox, spent the week-end with relatives in Spartanburg.

Mrs. Bertha Helmes is on the sick list this week—also the infant daughter of Mr. and Mrs. Charles Parker.

Mrs. Connie Buchanan is recovering from a recent operation at the Marion Hospital.

IKEY.

EGAN, GA.

Martel Mills

Dear Aunt Becky:

Martel is still going fine with plenty of contented help and beautiful flowers.

Mr. and Mrs. Pat Maley and Mr. and Mrs. Buford Stevens, visited Mr. and Mrs. J. N. Forrest at Jonesboro, Ga., Sunday.
Sunday.

Mr. and Mrs. T. W. Haddle and children visited here last week.

Mrs. Mary Dial spent Saturday night and Sunday with her daughter, Mrs. Margaret Sheffield.

Mr. and Mrs. Charlie William are spending the week with their mother, Mrs. Etta Williams.

Messrs. Jim Wright, Buster Smith, Clarence Sheffield and R. E. Haddle went fishing Saturday, June 9th and brought back a good supply of "chiggers;" they said it rained so hard it drowned all the fish. Beat that somebody.

Little Chandler Reese and Grady Boynton are back at play after being real sick for the past week.

What's the matter "Hamebone," have you deserted the Home Section?

Mrs. Lula Byce and daughter, Clara, of Fulton Bag, Atlanta, visited Mrs. Mary Dial, Sunday, June 1st.

Mr. and Mrs. Clarence Sheffield and Miss Mae Sheffield visited Mr. and Mrs. Walter Bales of Fulton Bag, Atlanta, Last Sunday.

PEG.

KERSHAW, S. C.

Dear Aunt Becky:

Our vacation is over and everyone is back at work. The mill had to stop last Monday for work on the turbine and started up again this morning; we enjoyed the rest but are glad to be back on the job.

Mr. and Mrs. W. R. Loveless and children, Misses Willie Mae and Lois Loveless and Misses Edna and Grace Bryson, all of Inman, were guests of Mr. and Mrs. Luther Adams Sunday and Monday.

Aunt Becky, so many of our folks went off to different places last week we can't name them all but here are a few: Mr. Johnne Adams to Fort Mill; Mr. and Mrs. Willie Adams, Mr. and Mrs. Jessie Evans and Mrs. Izetta Crolley, to Columbia; Mrs. Luther Adams to Camden; Mr. Wade Dabney to Charlotte; Messrs. Edgar Twitty, Tom Deaton, Enoch Deaton, and Mr. Churchill to Columbia; Mr. and Mrs. Roy Adams and children to Charlotte; and many more to the game in Fort Mill, Saturday.

We sure feel proud of our club; they beat Fort Mill again Saturday, the score being 10-9. A good many fans were present from both places and believe me they sure saw some good playing. The manager, Mr. Edgar Twitty, got his finger hurt, and had to stop playing. If there are any fast teams around who want a good game just call us up.

Aunt Becky when are you coming to Kershaw?

NEWSIE.

FAYETTEVILLE, N. C.

Victory Mill

Dear Aunt Becky:

Our mill is running full time with plenty of good help; and we are turning out a fine production and shipping every week. That looks good to us.

The painters are still at work and our vilvillage looks good now.

I am very sorry to say that our master mechanic and yard supervisor, E. R. Lilly, is very sick at this time; we hope to see him up and going soon.

Our ball club is going fine this year; they defeated Raeford 3 to 2 recently and we are going over there and try the same thing this week. C. D. Hendrix is manager of the team, L. E. Monroe, secretary-treasurer, and M. C. Tidwell, assistant.

Speaking of the "golf sports" our secretary and treasurer, Mr. Bearden, and our superintendent, Mr. Hart, they are "It." Just how many holes they make it is hard to tell.

We all look forward to see Friday come, so we can read the Bulletin and the Home Section.

HARD BOILED.

Elliott had at last fallen asleep. Noiselessly making her way to the hall 'phone she cautiously called up the hospital and asked for news of Lula Neal.

"She is still unconscious, but is beginning to show symptoms of reviving. Perhaps you'd better come up. There is no hope of her recovering, but it may be that she will revive sufficiently to give evidence," the nurse answered kindly.

Paula instantly called up her father and mother, begging them to come at once, which they were already preparing to do. The fleetest horses were hitched to the carriage and no time lost.

Paula hardly knew what to do, but concluded to call the maid and leave explanations. This she did, and hurried to the bedside of the woman on whose words hung the destiny of Fred Elliott.

Before leaving her room, Paula had gone on her knees and prayed God to restore Lula Neal to life and reason to flood her heart with penitence. It seemed so terrible for a soul to go into eternity black with sin and shame, damned forever to an endless hell.

When Paula, pale and frightened, yet brave and quiet, entered the room where Lula Neal lay dying, she paused for a moment irresolute. Oh, if her mother were only here!

The kind nurse, acquainted with all the details of the tradegy, and enough of Paula's part in it to make her tender and sympathetic, placed an arm around her and whispered:

"You poor little thing. We have resorted to every known method to revive her—I believe she will regain consciousness."

"Oh, must she really die!" Paula asked in awe, as she approached the bed and gazed down upon the pale features of the once beautiful and virtuous girl.

"There is not a shred of hope," replied the nurse, placing a chair for Paula, close to the bed.

With heart pounding almost to suffocation, lips white and drawn, mind in a dizzy whirl, Paula sat down, took one of the woman's cold little hands in her trembling ones, and watched prayerfully for any change in the patient.

A nurse sat at the other side of the narrow bed, grave and silent, watching intently the feeble respiration and bending over with ear to the weak heart and finger on the fluttering pulse.

In an agony of fear and suspense, Paula sat there, her soul rent in anguish, and counting the moments which seemed like hours, listening for the entrance of her mother, whose comfort, presence and counsel she now craved.

"I think a lawyer should be present or where we can get him immediately," advised the nurse from across the bed. "If she ever revives at all, it will be soon."

Paula looked around helplessly and then, oh, joy, her mother glided in noiselessly, and stopped to kiss her.

(Continued Next Week)